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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO


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Motorola 17P1 TS-426
17P2 " "

Zenith A1510L Chassis
A1511G 15A25
A1512J
A1515W

17-S.

17-5

## RESISTORS

| Symbol | Description | Part No. |
|---|---|---|
| R1 | 470,000 Ohms, ½ Watt | 60B 3-474 |
| R2 | 27,000 Ohms, 1 Watt | 60B 14-273 |
| R3 | 2,200 Ohms, ½ Watt | 60B 3-222 |
| R4 | 56,000 Ohms, ½ Watt | 60B 2-563 |
| R5 | 22,000 Ohms, ½ Watt | 60B 3-223 |
| R6 | 470,000 Ohms, ½ Watt | 60B 3-474 |
| R7 | 27,000 Ohms, 1 Watt | 60B 14-273 |
| R8 | 47,000 Ohms, ½ Watt | 60B 3-473 |
| R9 | 15,000 Ohms, 2 Watt | 60B 21-153 |
| R10 | 390 Ohms, ½ Watt | 60B 3-391 |
| R11 | 6,800 Ohms, 5%, ¼ Watt | 60B 1-682 |
| R12 | 6,800 Ohms, 5%, ¼ Watt | 60B 1-682 |
| R13 | 27,000 Ohms, ½ Watt | 60B 3-273 |
| R14 | 470,000 Ohms, ½ Watt | 60B 3-474 |
| R15 | 220,000 Ohms, ½ Watt | 60B 3-224 |
| R16 | 15,000 Ohms, 2 Watt | 60B 21-153 |
| R17 | 120,000 Ohms, ½ Watt | 60B 2-124 |
| R18 | 100,000 Ohms, ½ Watt | 60B 2-104 |
| R19 | 47,000 Ohms, ½ Watt | 60B 3-473 |
| R20 | 2 Megohms Volume Control (Tapped at 1 Megohm. Includes Switch SW2) | 75B 2-8 |
| R21 | 4.7 Megohms, ½ Watt | 60B 3-475 |
| R22 | 2 Megohms Tone Control | 75B 1-20 |
| R23 | 2.2 Megohms, ½ Watt | 60B 3-225 |
| R24 | 470,000, ½ Watt | 60B 3-474 |
| R25 | 47,000, ½ Watt | 60B 3-473 |
| R26 | 2.2 Megohms, ½ Watt | 60B 3-225 |
| R27 | 470,000 Ohms, ½ Watt | 60B 3-474 |
| R28 | 390 Ohms, 1 Watt | 60B 14-391 |

## CONDENSERS

| Symbol | Description | Part No. |
|---|---|---|
| C1 | 30 mmfd., ±2%, Zero Temp. Coeff. Silver Ceramic | 65B 6-31 |
| C2a | 440 mmfd. (max.) Antenna Section | Cond. Gang 68B 8 |
| C2b | 160 mmfd. (max.) Osc. Section | |
| C3 | 30 mmfd., Ceramic | 65B 6-4 |
| C4 | .05 mfd., 200 Volts, Paper | 64B 1-32 |
| C5 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C6 | 22 mmfd., ±2%, Zero Temp. Coeff. Silver Ceramic | 65B 6-30 |
| C7 | 955 mmfd., ±3% Mica | 65B 1-51 |
| C8 | .1 mfd., 400 Volts, Paper | 64B 1 20 |
| C9 | 30 mmfd., Ceramic | 65B 6-4 |
| C10 | 30 mmfd., Ceramic | 65B 6-4 |
| C11 | 45 mmfd., ±2%, —.00015 Temp. Coeff. Silver Ceramic | 65B 6-32 |
| C12 | 180 mmfd., ±3%, Mica | 65B 1-29 |
| C13 | 10 mmfd., Ceramic | 65B 6-24 |
| C14 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C15 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C16 | .01 mfd., 400 Volts, Paper | 64B 1-25 |
| C17 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C18 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C19 | .0001 md., Ceramic | 65B 6-3 |
| C20 | .0001 mfd., Ceramic | 65B 6-3 |
| C21 | .01 mfd. Ceramic (Disc) | 65A 10-1 |
| C22 | .0001 mfd., 5%, Ceramic | 65B 6-7 |
| C23 | .0001 mfd., 5% Ceramic | 65B 6-7 |
| C24 | 4 mfd., 150 volts, Electrolytic | 67A 4-2 |
| C25 | .002 mfd., 600 Volts, Paper | 64B 1-14 |
| C26 | .01 mfd., 400 Volts, Paper | 64B 1-25 |
| C27a | 30 mfd., 350 Volts | |
| C27b | 30 mfd., 350 Volts | |
| C27c | 10 mfd., 350 Volts, Elect | 67C 7-10 |
| C27d | 20 mfd., 25 Volts | |
| C28 | .2 mfd., 200 Volts, Paper | 64B 1-29 |
| C29 | .001 mfd., 600 Volts, Paper | 64B 1-15 |
| C30 | .005 mfd., 600 Volts, Paper | 64B 1-17 |
| C31 | .01 mfd., 400 Volts, Paper | 64B 1-25 |
| C32 | .01 mfd., 400 Volts, Paper | 64B 1-25 |
| C33 | .80 mmfd., Ceramic | 65B 6-4 |
| C34 | .05 mfd., 400 Volts, Paper | 64B 1-22 |
| C35 | .002 mfd., 600 Volts, Paper | 64B 1-12 |
| C36 | .1 mfd., 400 Volts, Paper | 64B 1-20 |
| C37 | .01 mfd., 600 Volts, Paper | 64B 1-10 |
| C38 | .05 mfd., 400 Volts, Paper | 64 B 1-22 |
| C39 | 15 mmfd., Ceramic | 65B 6-18 |

## TRANSFORMERS, COILS, ETC.

| Symbol | Description | Part No. |
|---|---|---|
| T1 | Transformer, 1st I.F. (F.M.) | 72B 37 |
| T2 | Transformer, 2nd I.F. (F.M.) Slug, (used in T1 and T2) | 72B 38 98A 31-19 |
| T3 | Transformer, Discriminator | 72B 27 |
| | Slug, (used in T3) | 71C 1-22 |
| T4 | Transformer, 1st I.F. (A.M.) | 72B 28-12 |
| T5 | Transformer, 2nd I.F. (A.M.) | 72B 28-12 |
| T6 | Transformer, Power | 80B 5 |
| T7 | Transformer, Output, Speaker 10" P.M. Dynamic | 79A 5 78B 28 |
| L1 | Loop Antenna (A.M. 117) | 95A 18-2 |
| L2 | Coil, Loop Loading (A.M.) | 69A 25 |
| L3 | Coil, Antenna (F.M.) | 69A 23 |
| L4 | Coil, R.F. (A.M.) | 1A 1475 |
| | Slug (used in L4) | 71C 1-22 |
| L5 | Coil, R.F. (F.M.) | 69A 21 |
| L6 | Coil, Oscillator (F.M.) Slug (used in L3, L5, L6) | 69A 22 71C 1-25 |
| L7 | Coil, Oscillator (A.M.) | 69A 24 |
| L8 | Choke, Oscillator (F.M.) | 73A 1 |
| L9 | Choke, Filter | 74A 10 |
| L10 | Choke, R.F. (Approx. 10 turns of solid #22 hook-up wire wound on C26) | |
| SW1 | Switch, Band (FM, AM, Phono) | 77B 14 |
| SW2 | Switch, Power | (Part of R20) |
| SW3 | Switch, Phono Motor (Part of record changer assembly) | G400A 162 |

## DIAL PARTS

| Description | Part No. |
|---|---|
| Bracket, Dial Background Mounting | 13B 141 |
| Dial Bulb, #47 | 81A 1-8 |
| Dial Bulb Socket (with leads) | 82A 3-3 |
| Dial Cord (36") | 50A 1-3 |
| Dial Pointer | A1487 |
| Dial Scale and Indicator Assembly | A1506 |
| Drum and Hub Assembly (Pointer Shaft) | A1504 |
| Dial Escutcheon and Window (less rectangular insert) | 23E 20-1 |
| Escutcheon Insert | 23C 25-1 |
| Indicator Arm and Hub (on Band Switch Shaft) | A1508 |
| Indicator Link | 15A 176 |
| Lever Arm (band switch drive) | A1493 |
| Pointer Shaft | 28A 19 |
| Pulley Bracket Assembly | A1496 |
| Shaft, Band Switch | 28B 21-2 |
| Snap Button (used with Indicator Link) | 13A 1-4-47 |
| Spring, Band Switch Shaft | 18A 14 |
| Spring, Dial Cord | 19B 1-7 |
| Spring, Hair Pin (for Pointer Shaft) | 19A 2-2-0 |
| Spring Washer (for Pointer Shaft) | 4A 6-11-0 |
| Washer ("C" used with Band Switch | 4A 4-3-0 |

## TUNER PARTS

| Description | Part No. |
|---|---|
| Ball Bearing (2 used with top plate) | 30A 1-1 |
| Drum and Cam Assembly | A1502 |
| Grommet, Osc. Coil (L6) Mounting | 12A 1-15 |
| Grommet, R.F. & Antenna Coil (L3 and L5) Mounting | 12A 1-14 |
| Grommet, R.F. Coil (L4) Mounting | 12A 1-12 |
| Insulator, Mounting Plate (for AM-RF coil slug adjusting Screw) | 32A 50 |
| Insulator, Mounting Plate (for FM coils) | 32A 52 |
| Insulator, Mounting Plate (for FM slug adjusting screws) | 32A 51 |
| Screw, Slug Adjusting | 27A 4 |
| Slug Drive (top plate) Assembly | A1503 |
| Spring, Slug Drive Plate Tension | 19B 1-13 |
| Spring Washer (for Tuning Shaft) | 4A 5-3-0 |
| Tuning Shaft | 28A 1-5 |
| Washer ("C" for Tuning Shaft) | 4A 4-1-0 |

## PHONOGRAPH PARTS

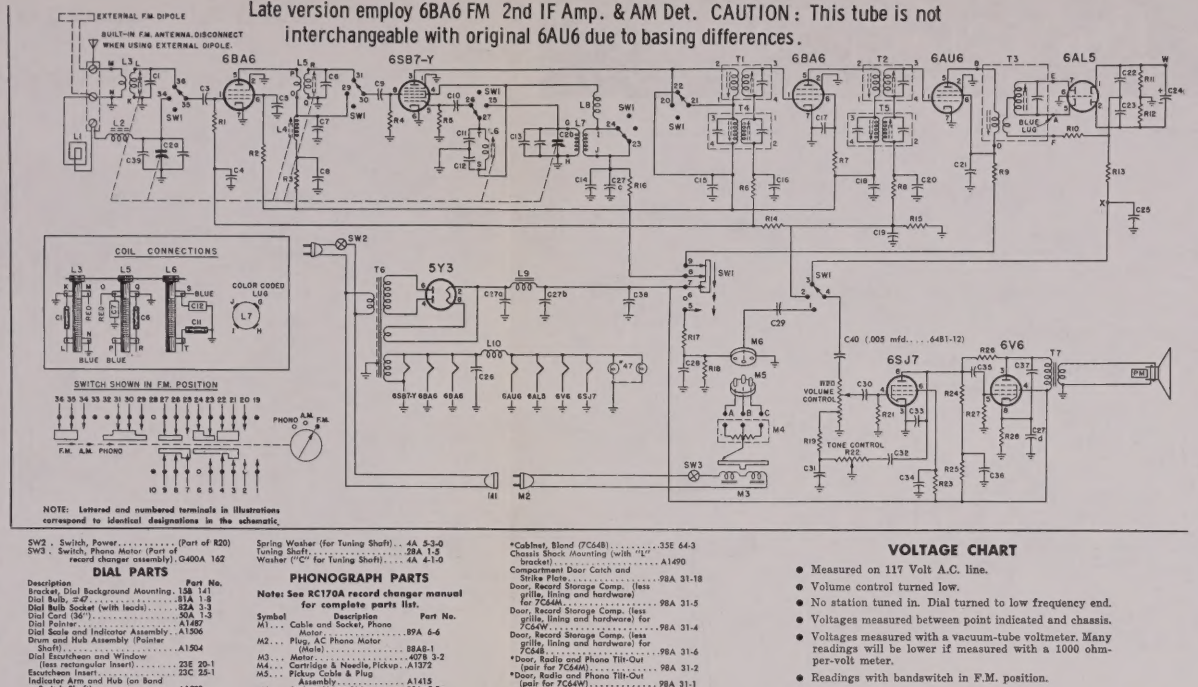
**Note: See RC170A record changer manual for complete parts list.**

| Symbol | Description | Part No. |
|---|---|---|
| M1 | Cable and Socket, Phono Motor | 89A 6-6 |
| M2 | Plug, AC Phono Motor (Male) | 88AB-1 |
| M3 | Motor | 407B 3-2 |
| M4 | Cartridge & Needle, Pickup | A1372 |
| M5 | Pickup Cable & Plug Assembly | A1415 |
| M6 | Socket, Phono Pickup | 88A 5-8 |
| | Centerpost | G400B 137-1 |
| | Drive Disc Assembly (under Turntable) | G400A 179 |
| | Idler Wheel (407B3 Motor) | G400A 23 |
| | Idler Wheel (407B1 Motor) | G400A 57 |
| | Nut, Wing (for fastening record changer during shipment) | 2A 5-9-2 |
| | Shoulder Eye Bolt (for Tilt Out Spring) | 1A 87-1 |
| | Strip, Sponge Rubber (1/16x¼x1") | 12A 5-5 |
| | Tilt Out Hinge Assembly (Pickup Arm Side) | AC118-2 |
| | Tilt Out Hinge Assembly (Record Support Side) | AC118-1 |
| | Tilt Out Spring (2¼" long) | 19A 15-1 |
| | Tilt Out Tie Bar | 13B 126 |
| | Tilt Out Tie Rod | 28A 22 |

## MISCELLANEOUS

| Description | Part No. |
|---|---|
| Hinge, Butt (Radio Comp.) (pair for 7C64W, 7C64M) | 98A 31-14 |
| Hinge, Butt (Radio Comp.) (pair for 7C64B) | 98A 31-16 |
| Hinge, Butt (Record Comp.) (pair for 7C64W, 7C64M) | 98A 31-15 |
| Hinge, Butt (Record Comp.) (pair for 7C64B) | 98A 31-17 |
| *Cabinet, Walnut (7C64W) | 35E 64-1 |
| *Cabinet, Mahogany (7C64M) | 35E 64-2 |
| *Cabinet, Blond (7C64B) | 35E 64-3 |
| Chassis Shock Mounting (with "L" bracket) | A1490 |
| Compartment Door Catch and Strike Plate | 98A 31-18 |
| Door, Record Storage Comp. (less grille, lining and hardware) for 7C64M | 98A 31-5 |
| Door, Record Storage Comp. (less grille, lining and hardware) for 7C64W | 98A 31-4 |
| Door, Record Storage Comp. (less grille, lining and hardware) for 7C64B | 98A 31-6 |
| *Door, Radio and Phono Tilt-Out (pair for 7C64M) | 98A 31-2 |
| *Door, Radio and Phono Tilt-Out (pair for 7C64W) | 98A 31-1 |
| *Door, Radio and Phono Tilt-Out (pair for 7C64B) | 98A 31-3 |
| Door Handle, Record Storage Comp. (for 7C64W, 7C64M) | 98A 31-10 |
| Door Handle, Record Storage Comp. (for 7C64B) | 98A 31-12 |
| Door Handle, Radio and Phono Comp. (for 7C64M, 7C64W) | 98A 31-9 |
| Door Handle, Radio and Phono Comp. (for 7C64B) | 98A 31-11 |
| Knob | 33A 13 4 |
| Grille Cloth | 98A 31-8 |
| Hinge, Knife (concealed type; pair for 7C64W, 7C64M) | 98A 31-13 |
| Metal Grille (Speaker and Compartment) | 98A 31-7 |
| Screw, Chassis Mounting (⅛"-20x1") | 1A 98-11-2 |
| Set Screw, ±6-32x⅛" (used with Dial and Tuning Assembly Hubs) | 1A 5-54 |
| Socket, Miniature Tube | 87A 3-4 |
| Socket, Octal | 87A 5-1 |
| Speaker, 10" P.M. Dynamic | 78B 28 |
| Transmission Line (300 Ohms for Outdoor F.M. Antenna. Order length needed) | 95A 16-5 |
| Washer (Felt, for Knobs) | 5A 4-2 |
| Washer, Flat (Chassis Mounting) | 4B 1-142-2 |
| Washer, Lock (Chassis Mounting) | 3B 1-7-2 |

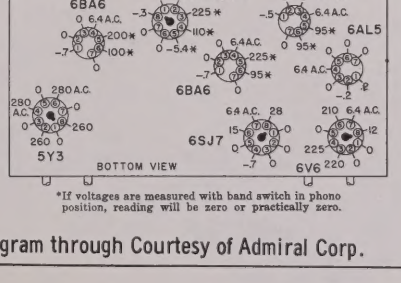
*Supplied only if old part cannot be repaired. When ordering, describe condition of old part in detail.




NOTE: Lettered and numbered terminals in illustrations correspond to identical designations in the schematic.

## VOLTAGE CHART

- Measured on 117 Volt A.C. line.
- Volume control turned low.
- No station tuned in. Dial turned to low frequency end.
- Voltages measured between point indicated and chassis.
- Voltages measured with a vacuum-tube voltmeter. Many readings will be lower if measured with a 1000 ohm-per-volt meter.
- Readings with bandswitch in F.M. position.




*If voltages are measured with band switch in phono position, reading will be zero or practically zero.

ADMIRAL CHASSIS 8B1 (Model 7C64)

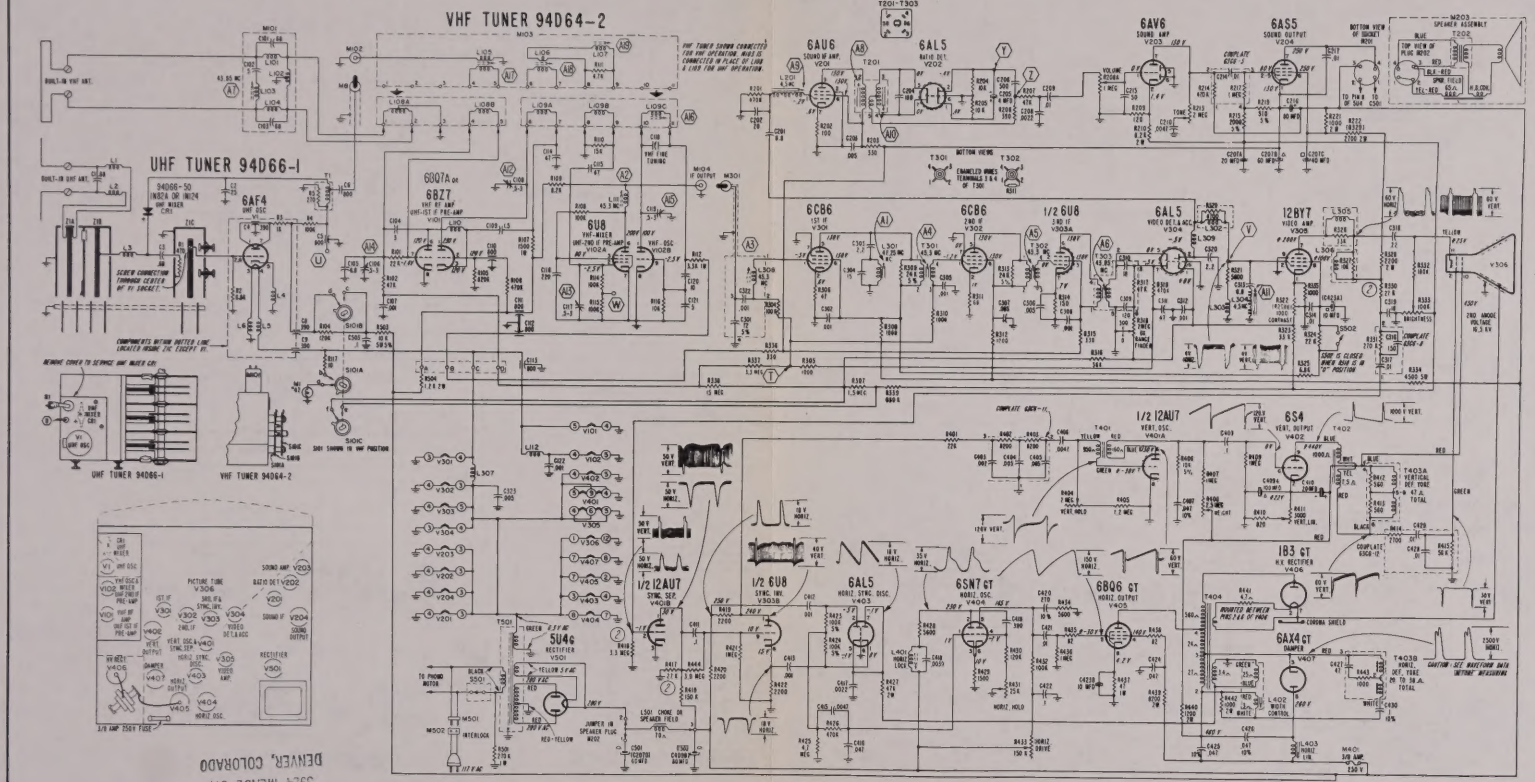
Schematic Diagram through Courtesy of Admiral Corp.

The PHOTOFACT Servicer

Set 373. . Vol. 38 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ Oct. 1, 1957

# ADMIRAL CHASSIS 20L2 (Models CA2236A, FA2226, TA2216A, TA2217A)

## Schematic Diagram through Courtesy of Admiral Corp.




DENVER, COLORADO
3924 MEADE ST.
L. F. DANNENSHIP

RETMA MEMBER
RADIO-ELECTRONICS-TELEVISION MANUFACTURERS ASSOCIATION

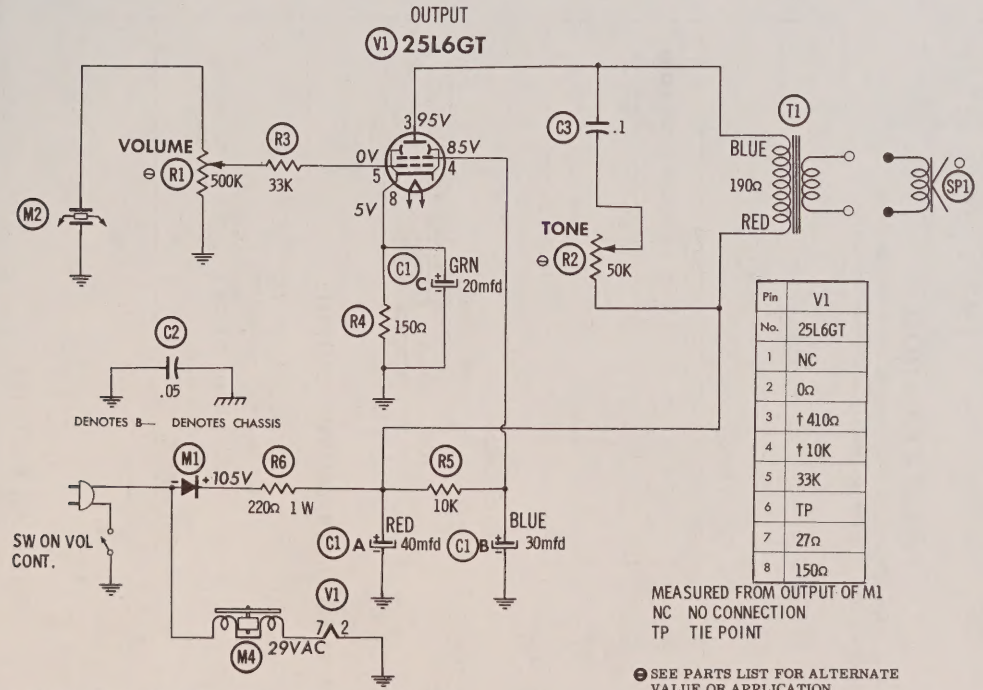
# COLUMBIA RECORDS MODELS 512, 540

COLUMBIA RECORDS MODELS 512, 540

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

COLUMBIA RECORDS MODELS 512, 540

| | |
|---|---|
| TRADE NAME | Columbia Records Model 512, 540 |
| MANUFACTURER | Columbia Records, 799 Seventh Ave., New York 19, N.Y. |
| TYPE SET | AC Operated Phono Amplifier With 4 Speed Manual Record Player |
| TUBES (One) | Type 25L6GT Output |
| POWER SUPPLY | 110-120 Volts AC-60 Cycles — RATING .42 Amp. @ 117 Volts AC (30 Watts With Motor) |




A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

373-1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Output | 25L6GT | |

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| | | | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | Columbia Records PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | 40 | 150 | | PRS150V40-3020 | BBRT43215 | TCT3107 | TDLT-3 | FMT-312 | TVA-3438 |
| B | 30 | 150 | | | | | | | |
| C | 20 | 150 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | Columbia Records PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C2 | .05 | 400 | | BPD-05 | DF-503 | CUB4S5 | | GEM-415 | 4TM-S5 | |
| C3 | .1 | 400 | | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES | |
|---|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | Columbia Records PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | | |
| R1A | 500K | 1/2 | 9B542 | AB-60 | A47-500K-Z | Q13-133 | U48 | Volume | Note 1 |
| B | Shaft | | | AK-4 | KSS-3 | Not Req. | Not Req. | | |
| C | Switch | | | KB-1 | SWE-12 | 76-1 | US-26 | | |
| R2A | 50K | 1/2 | 9B543 | AB-32 | A47-50K-S | Q11-123 | U35 | Tone | Note 2 |
| B | Shaft | | | AK-4 | KSS-3 | Not Req. | Not Req. | | |

Note 1. Part No. 9B544 Used In Model 540.
Note 2. Part No. 9B555 Used In Model 540.

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | Columbia Records PART No. | IRC PART No. | |
| R3 | 33K | | | BTS-33K | |
| R4 | 150Ω | | | BTS-150 | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | Columbia Records PART No. | IRC PART No. | |
| R5 | 10K | | | BTS-10K | |
| R6 | 220Ω | 1 | | BTA-220 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | Columbia Records PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2350Ω | 3-4Ω | TR-109 ① | Z1101 | A-3025 | A-3332 | 22S45 ② | S-12X | ① Alternate Part #3B205.<br>② Drill New Mtg. Hole. |

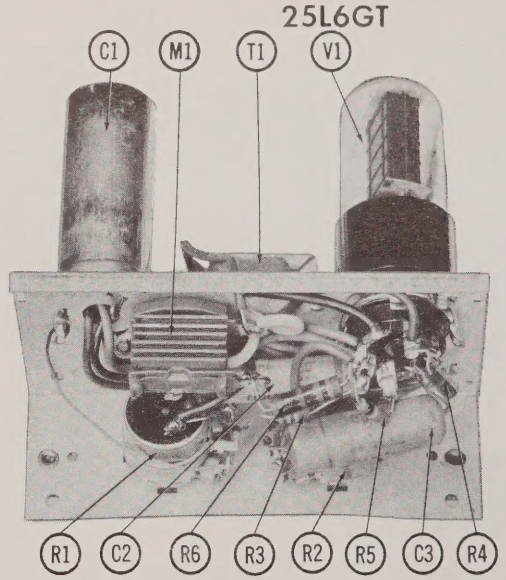
## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | Columbia Records PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 1A102 ① | 4A07 | ① Used in Model 512. |
| | 4" | PM | 3-4Ω | 1B113 ② | 4A07 | ② Used in Model 540. |

## SELENIUM RECTIFIER

| ITEM No. | RATING | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | Columbia Records PART No. | FEDERAL PART No. | INTERNATIONAL PART No. | MALLORY PART No. | SARKES TARZIAN PART No. | |
| M1 | .039A | 10B603 | 1002A | RS065Q | 6S65 | 65 | |

# CHASSIS—TOP VIEW




## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | | | | REMARKS |
|---|---|---|---|---|---|---|
| | Columbia Records PART No. | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | |
| | | CARTRIDGE | NEEDLE | CARTRIDGE | MOUNT | |
| M2 | TO-395 ① | 420-TS | N8-1 and N8-3 | | | * Tone Arm Complete With Cartridge.<br>① Part #RA395-S Used In Model 540. |
| | | * P310-T | | | | |

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

## PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

| ITEM No. | REPLACEMENT DATA | | | REMARKS |
|---|---|---|---|---|
| | Columbia Records PART No. | JENSEN PART No. | WALCO PART No. | |
| M3 | | † CRA55 or<br>† CRA-55LP or<br>♦ CRA55D or<br>♦ CRA55LPD | † W-64S or<br>† W-64MGS | † Jewel<br>♦ Diamond |

## MISCELLANEOUS

| ITEM No. | PART NAME | Columbia Records PART No. | NOTES |
|---|---|---|---|
| M4 | Phono Motor | 6B307 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 8B451 | On-Off-Volume, Tone; Light Gray, Model 512. |
| Knob | 8B452 | On-Off-Volume, Tone; Turquoise, Model 512. |
| Knob | 8B457 | On-Off-Volume, Tone; Gray, Model 540. |
| Knob | 8B458 | On-Off-Volume, Tone; Turquoise, Model 540. |

# CORONADO MODELS
# TV3-9395A

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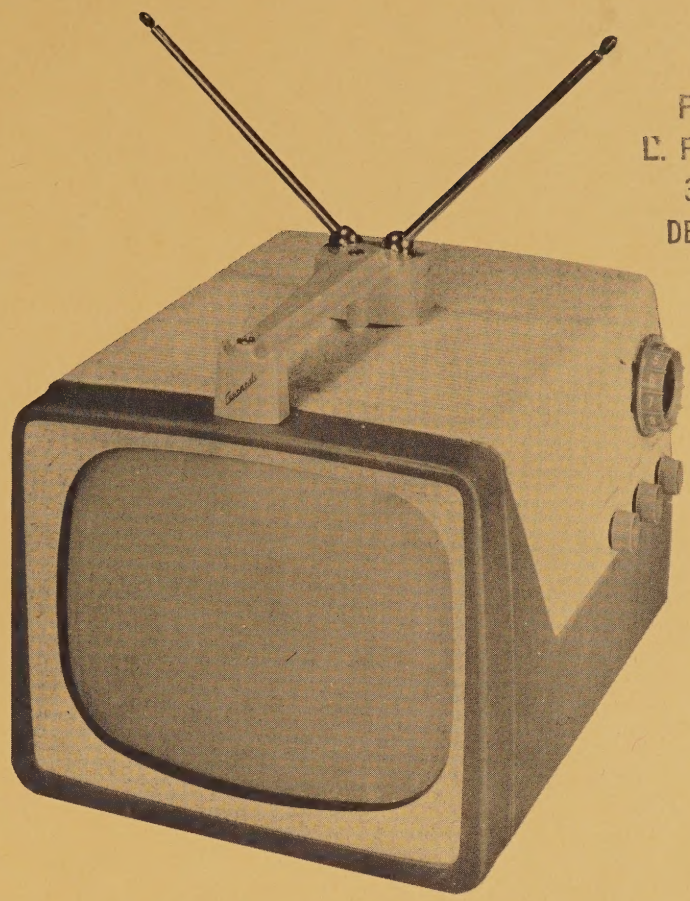

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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CORONADO MODELS
TV3-9395A

| | |
|---|---|
| TRADE NAME | Coronado Model TV3-9395A |
| SUPPLIER | Gamble-Skogmo, Inc., 15 North 8th. Street, Minneapolis, Minn. |
| TYPE SET | Television Receiver |
| TUBES | Thirteen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle — RATING 115 Watts, 1.14 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

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# DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs.
2. Remove 4 metal screws and swing rear cover up over the top.
3. Remove 2 antenna leads.
4. Remove the center bolt from the handle.
5. Remove 3 chassis bolts and the 2 rear feet from the bottom.
6. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

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# SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 11 o'clock, and should be adjusted first. The LOW band adjustment is located at 3 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 metal screws holding the handle. Remove 2 metal screws from the bottom front edge of the cabinet. Remove the front and safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

FUSES

A 4.7Ω fusible resistor (R68) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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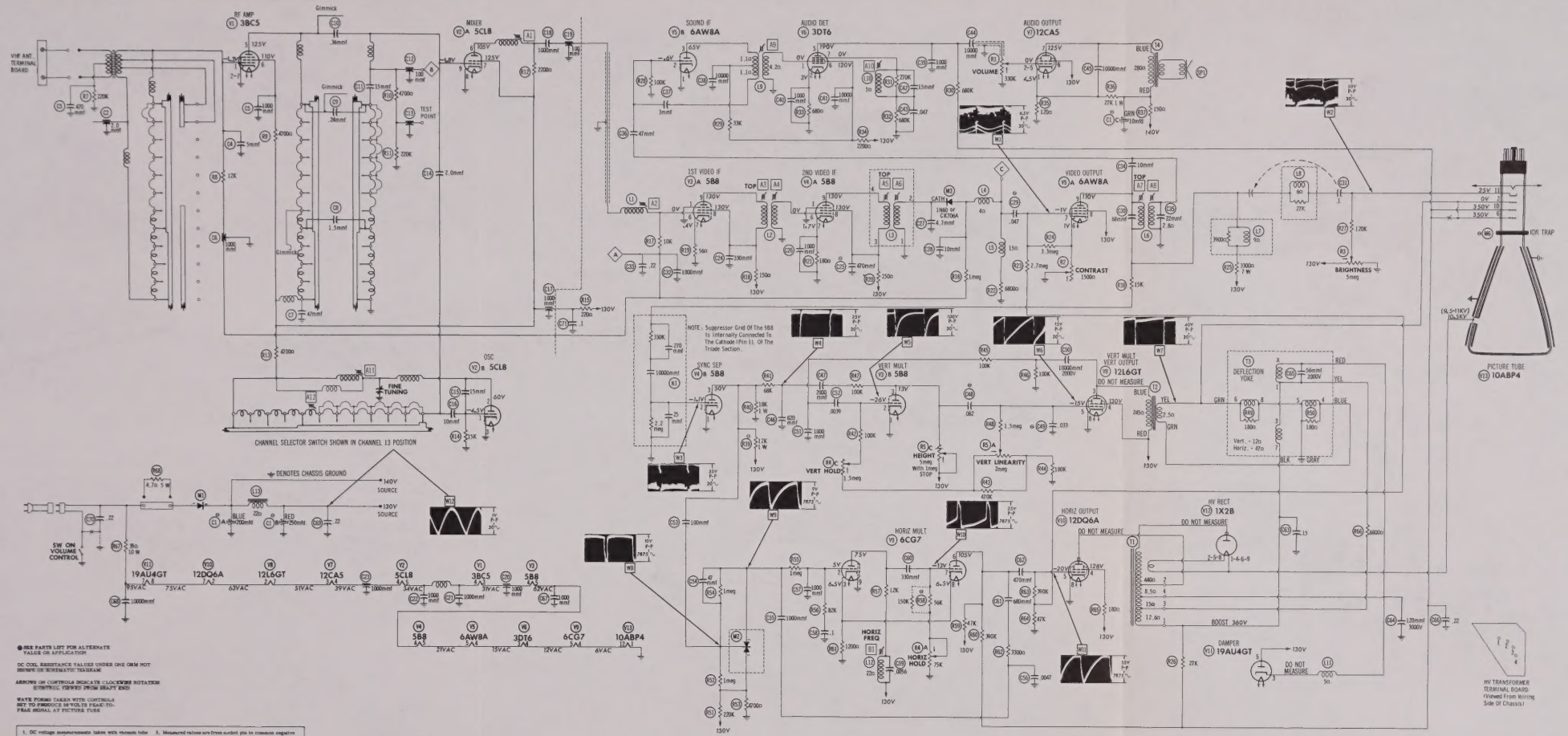


● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vtvm's tube voltmeter; AC voltage measured at 1,000 cycles per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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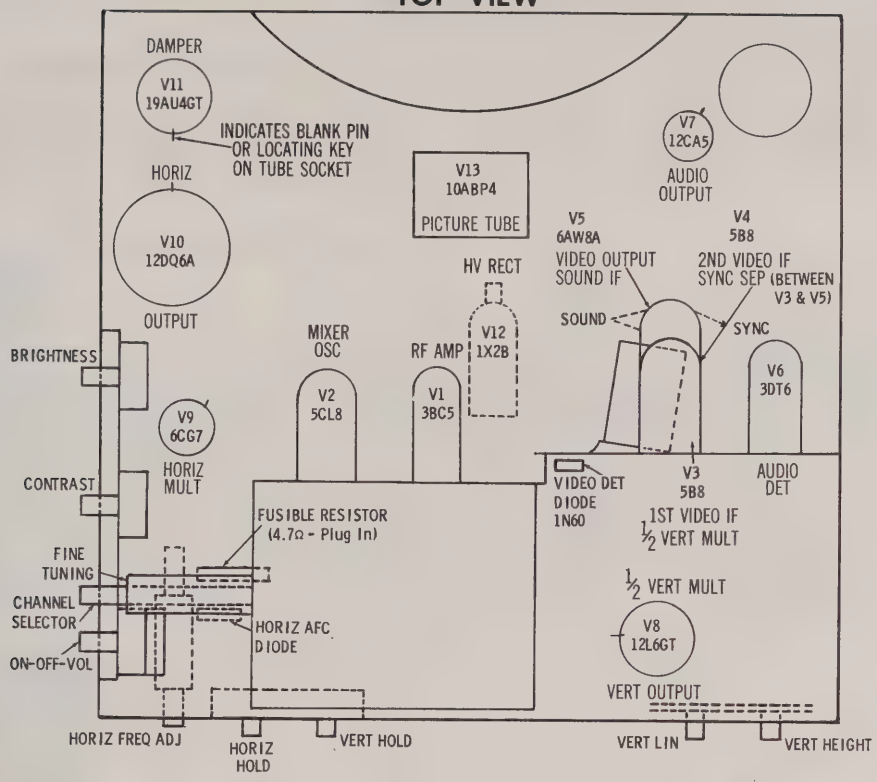
# TUBE PLACEMENT CHART

## TOP VIEW

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# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

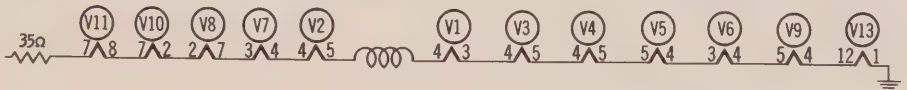
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R68), Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, Diode (M3), V5
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V5, V13
Has pic, no sound - V5, V6, V7

SYNC FAILURE
No vert. sync - V3, V4, V8
No horiz. sync - V4, Diode (M2), V9
No vert. or horiz. sync - V4

SWEEP FAILURE
No raster, has sound - M2, V9, V10, V11, V12, V13
No vertical deflection - V3, V8
Poor vert. linearity or foldover - V3, V8
Poor horiz. linearity or foldover - V9, V10, V11
Narrow picture - V9, V10, V11, M1
Vert. off freq. - V3, V4, V8
Horiz. off freq. - V4, M2, V9

Since this receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below.)



# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis.

**VIDEO IF ALIGNMENT**

Connect the negative lead of a 3 volt bias battery to point (A). Positive to chassis.
Disable oscillator by replacing Mixer-Osc. tube 5CL8 (V2) with a 5CL8 with pin 1 removed.
Short the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | 1000MMF ceramic capacitor | High side to point (B). Low side to chassis. | 44.0MC (10MC Swp) | 42.75MC 45.75MC | Any channel. | Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V3). Low side to chassis. | A1, A2 | Adjust for response similar to Fig. 2 with markers in proper positions. |
| 2. | " | High side to pin 6 (grid) of 5B8 (V3). Low side to chassis. | " | " | " | Vert. amp. thru detector (Fig. 1) to plate, pin 9 of 5B8 (V4). Low side to chassis. | A3, A4 | " |
| 3. | " | High side to pin 6 (grid) of 5B8 (V4). Low side to chassis. | " | " | " | Vert. amp. to point (C). Low side to chassis. | A5, A6 | " |
| 4. | " | High side to point B. Low side to chassis. | " | " | " | " | | Retouch A1 thru A6 as needed to correct for curve similar to Fig. 3. Remove bias and replace 5CL8 (V2). |

**SOUND IF ALIGNMENT**

Set the contrast control fully clockwise. Set volume control at midrange.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 5. | 1000MMF ceramic capacitor | High side to point (C). Low side to chassis. | Not used. | 4.5MC (400% 30% AM Mod) | Any non-interfering channel. | Vert. amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis. | A7, A8 | Turn A7 fully counter clockwise. Turn A8 fully clockwise. Turn A7 clockwise for MINIMUM 400% indication on scope. |
| 6. | " | " | 4.5MC (15KC Swp) | Not used. | " | Across secondary of output transformer. | A8, A9, A10 | Use only enough sweep generator output to provide usable pattern on scope. Turn A10 fully counter clockwise. Adjust A8, A9 and A10 for maximum indication on scope. Remove test equipment and tune in a TV station. Retouch A10 for MINIMUM buzz. |

**OSCILLATOR ALIGNMENT**

Turn the set on and tune in the highest band channel (7-13) operating in the area and adjust A11 for clearest picture and best sound. A11 is located to the left and SLIGHTLY above the tuning shaft. Switch the channel selector to the highest low band channel (2-6) operating in the area and adjust A12 for clearest sound and best picture. A12 is located directly to the right of the tuner shaft.

**RF AND MIXER ALIGNMENT**

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

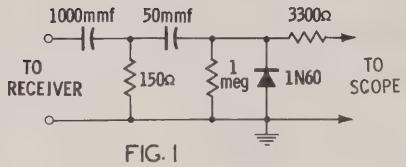


FIG. 1

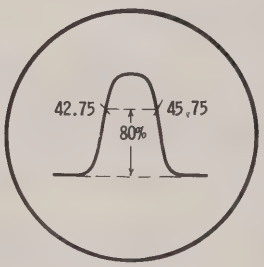


FIG. 2

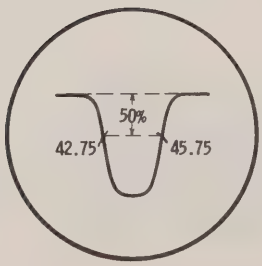


FIG. 3

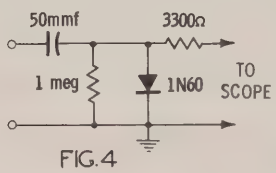
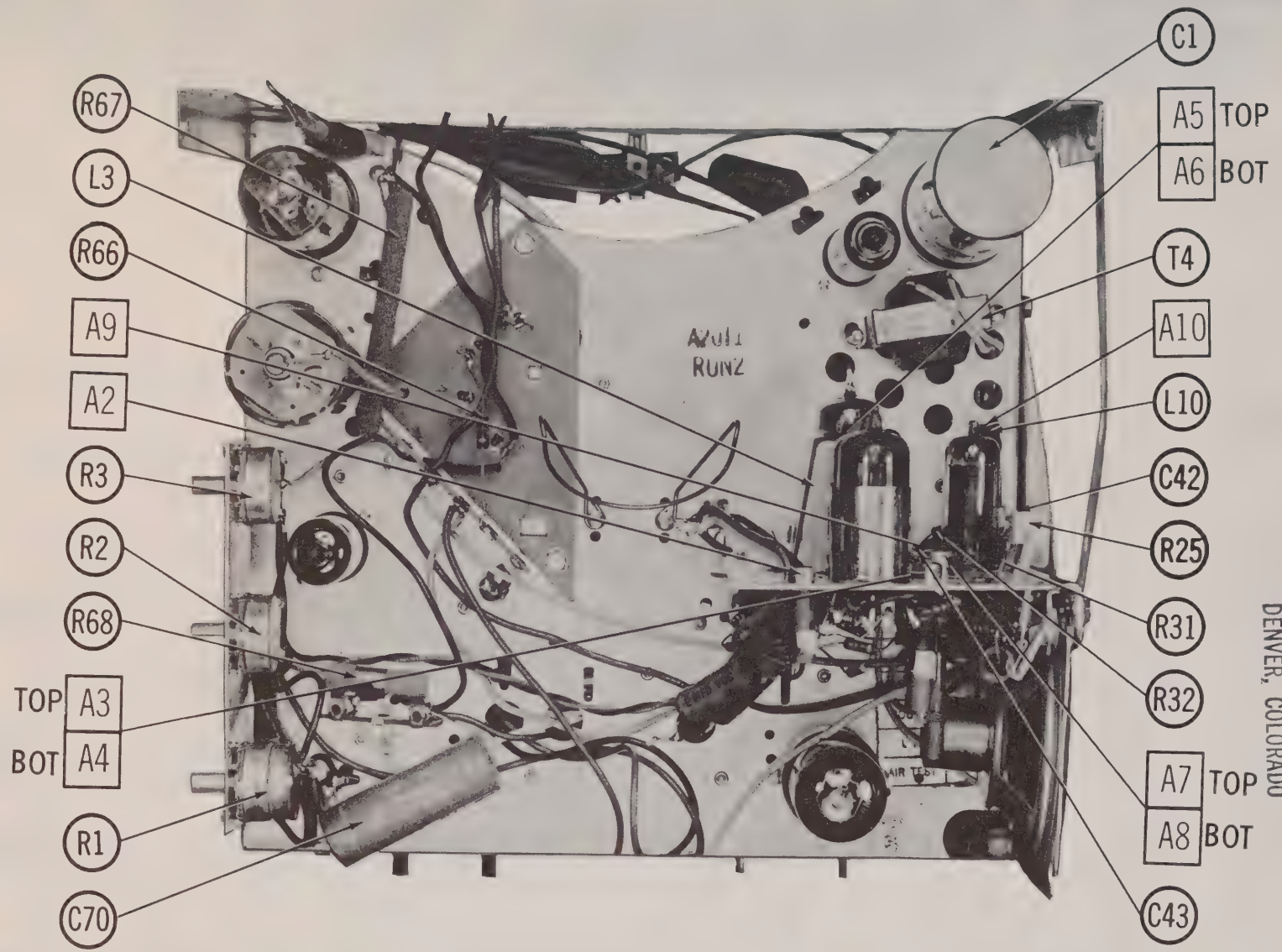


FIG. 4




CHASSIS TOP VIEW

TV3-9395A

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# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | RF Amp. | 3BC5 | |
| V2 | Mixer-Osc. | 5CL8 | |
| V3 | 1st Video IF - Vert. Mult. | 5B8 | |
| V4 | 2nd Video IF - Sync Sep. | 5B8 | |
| V5 | Video Output-Sound IF | 6AW8A | |
| V6 | Audio Det. | 3DT6 | |

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V7 | Audio Output | 12CA5 | |
| V8 | Vert. Mult. - Vert. Output | 12LR6T | |
| V9 | Horiz. Mult. | 6JC7 | |
| V10 | Horiz. Output | 12DQ6A | |
| V11 | Damper | 1S4/1G4GT | |
| V12 | HV Rectifier | 1X2B | |

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|
| | CORONADO PART No | GENERAL ELECTRIC PART No | SYLVANIA PART No | |
| V13 | 10ABP4 | | 10ABP4B | |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | CORONADO PART No | AEROVOX PART No. | CORNELL DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No |
| C1A | 200 | 150 | 45A392 | PRS-013 | | WT320 | CDBT-1015 | D-095 MT-1510 | R2294 * |
| B | 250 | 150 | | | | | | | |
| C | 10 | 150 | | | | | | | |

* Non-catalog item

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP | VOLT | CORONADO PART No | AEROVOX PART No | CENTRALAB PART No | CORNELL-DUBILIER PART No | ERIE PART No | MALLORY PART No | SPRAGUE PART No | |
| C2 | 2.0 | | | | | | | | | |
| C3 | 470 | | 47A836 | BPD-00047 | DD-471 | SYA1GT47 | ED-470 | UC-5347 | 5GA-T47 | |
| C4 | 5 | | | NP0-S1 5 | TCZ-4R7 | C10Y5C | TCO-5 | ST-5047 | 5TCCB-Y5 | |
| C5 | 1000 | | 47-503 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C6 | 1000 | | | SY-001 | MPT-1000 | | | | 503C-D1 | |
| C7 | 47 | | 47CA30A470M | BPD-00047 | DD-470 | L10Q47 | ED-47 | UC-5447 | 5GA-Q47 | |
| C8 | 1.5 | | | NP0-S1 1.5 | TCZ-1R5 | C10Y1SC | TCO-1.5 | ST-5015 | 5TCCB-Y15 | |
| C9 | .24 | | | | | | | | | |
| C10 | .38 | | | | | | | | | |
| C11 | 15 | | | BPD-000015 | DD-150 | L10Q15 | ED-15 | UC-5416 | 5GA-Q15 | |
| C12 | | | | | | | | | | |
| C13 | 100 | | | | | | | | | |
| C14 | 2.0 | | | NP0-S1 2. 2 | TCZ-2. 2 | C10Y2C | TCO-2 | | | |
| C15 | 15 | | | | | | | | | N1000 |
| C16 | 10 | | | NP0-S1 10 | TCZ-10 | C10Q1C | TCO-10 | ST-541 | 5TCC-Q1 | |
| C17 | 1000 | | | SY-001 | MPT-1000 | | | | 503C-D1 | |
| C18 | 1000 | | 47-503 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C19 | 100 | | | | | | | | | |
| C20 | 1000 | | | SY-001 | MPT-1000 | | | | 503C-D1 | |
| C21 | 1000 | | 47-503 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C22 | 1000 | | 47-503 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C23 | 1000 | | | SY-001 | MPT-1000 | | | | 503C-D1 | |
| C24 | 330 | | 47A541 | BPD-00033 | DD-331 | C10T33 | ED-330 | UC-5333 | 5GA-T33 | |
| C25 | 470 | | 47A543 | BPD-00047 | DD-471 | SYA1GT47 | ED-470 | UC-5347 | 5GA-T47 | |
| C26 | 1000 | | 47A230 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C27 | 4.7 | | 47B403-6 | NP0-S1 4. 7 | TCZ-4R7 | C10Y4C | TCO-4.7 | ST-535 | 5TCCB-Y47 | |
| C28 | 470 | | 47CA30A100K | LT6QJ | GP-10 | UC-541 | 5GA-Q1 | | | |
| C29 | .047 | 150 | 46D618-473M2 | P288N-047 | DF-503 | CUB3S47 | | GEM-4547 | 2TM-S47 | |
| C30 | 68 | | 47-435 | | | | | | | N75 |
| C31 | .1 | 200 | 46D616-104M2 | P288N-1 | DF-104 | CUB3P1 | | GEM-301 | 2TM-P1 | |
| C32 | 1000 | | 47A230 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C33 | .22 | 100 | 46D618-224M1 | P288N-23 | | CUB2P23 | | GEM-3023 | 2TM-P23 | |
| C34 | 10 | | 47A180-11 | S1 10 | D6-100 | L70Q1 | GP-10 | UC-541 | 5GA-Q1 | |
| C35 | 33 | | 47-434 | | | | | | | N75 |
| C36 | 47 | | 47CA30A470M | S1 47 | D6-470 | L70Q47 | GP-47 | UC-5447 | 5GA-Q47 | |
| C37 | 8 | | 47A807 | S1 8 | D6-080 | L70V3 | TCO-3 | ST-153 | | |
| C38 | 10000 | | 47A234 | BPD-01 | DD-103 | SYA5DI | ED-01 | DC53 | 5SK-S1 | |
| C39 | 1000 | | 47A230 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C40 | 1000 | | 47A230 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C41 | [illegible] | | 47A234 | BPD-01 | DD-103 | SYA5S1 | ED-01 | DC53 | 5SK-S1 | |
| C42 | 15 | | 47B480 | | | | | | | ND80 |
| C43 | .047 | 200 | 46D618-473M2 | BPD-05 | DF-503 | CUB3S47 | | GEM-3147 | 2TM-S47 | |
| C44 | 10000 | | 47A234 | BPD-01 | DD-103 | SYA5S1 | ED-01 | DC53 | 5SK-S1 | |
| C45 | 10000 | | 47A234 | BPD-01 | DD-103 | SYA5S1 | ED-01 | DC53 | 5SK-S1 | |
| C46 | [illegible] | | 47-806 | BPD-0006 | D6-621 | L10T23 | ED-620 | | 5GA-T62 | |
| C47 | 2000 | | 47A395 | BPD-002 | DD-202 | SYA5D2 | ED-002 | DC523 | 5SK-D2 | |
| C48 | .068 | 200 | | | | | | | | |
| C49 | .033 | 200 | | P288N-033 | DF-303 | CUB3S33 | | GEM-4123 | 2TM-S33 | |
| C50 | 10000 | 2000 | 47-708 | | | | | GEM-3101 | 5L-S10 | |
| C51 | [illegible] | | 47-503 | BPD-001 | DD-102 | SYA5DI | ED-001 | DC53 | 5SK-D1 | |
| C52 | .0039 | 200 | 46SB392E4 | BPD-004 | DD-403 | CUB3D39 | GP-4000 | GEM-434 | 2TM-D4 | |
| C53 | 100 | | 47CA30A101M | S1 100 | D6-101 | L70T1 | GP-100 | UC-531 | 5GA-T1 | |
| C54 | 47 | | 47CA30A470M | S1 47 | D6-470 | L70Q47 | GP-47 | UC-5447 | 5GA-Q47 | |
| C55 | 1000 | | 47A588 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C56 | .0047 | 200 | 46D616-472X2 | BPD-0047 | DD-472 | CUB3D47 | GP-4700 | GEM-4347 | 2TM-D47 | |
| C57 | [illegible] | | 47A588 | BPD-001 | DD-102 | SYA5D1 | ED-1000 | DC53 | 5SK-D1 | |
| C58 | .1 | 200 | 46SD616-104M2 | P288N-1 | DF-104 | CUB3P1 | | GEM-301 | 2TM-P1 | |
| C59 | .0047 | 400 | 46SB561E4 | P288N-005 | D6-563 | CUBMD5 | GP-5600 | GEM-435 | 2TM-D5 | |
| C60 | 330 | | 47X20D331K | 1464-00033 | | 5WET33 | | | M3-333 | |
| C61 | 680 | | 47X20D681K | 1464-00068 | | 5WT268 | | | M3-347 | |
| C62 | [illegible] | | 47A538 | BPD-00047 | DD-471 | SYA1GT47 | ED-470 | UC-5347 | 5GA-T47 | |
| C63 | .15 | 500 | 47SD615-154M5 | P688N-15 | | CUB5P15 | | GEM-6015 | 5TM-P15 | |
| C64 | [illegible] | 3000 | 47-840 | | DD30-121 | MYB30T12 | | | 30GA-T12 | |
| C65 | [illegible] | 2000 | 47A637 | | DD30-56 | MYA30Q56 | ED3-56 | DC30456 | 20GA-Q56 | |
| C66 | .22 | 600 | | P688N-23 | | CUB6P23 | | GEM-6023 | 5TM-P23 | |
| C67 | 1000 | | 47A230 | BPD-001 | DD-102 | SYA5DI | ED-1000 | DC53 | 5SK-D1 | |
| C68 | 10000 | | 47A234 | BPD-01 | DD-103 | SYA5S1 | ED-01 | DC53 | 5SK-S1 | |
| C69 | .22 | 200 | [illegible] | P288N-23 | | CUB3P23 | | GEM-3023 | 2TM-P23 | |
| C70 | .22 | 600 | [illegible] | P688N-23 | | CUB6P23 | | GEM-6023 | 5TM-P23 | |
| C71 | .1 | 200 | 46D616-104M2 | P288N-1 | DF-104 | CUB3P1 | | GEM-301 | 2TM-P1 | |

# PARTS LIST AND DESCRIPTIONS

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESIST ANCE | WATTS | CORONADO PART No | CENTRALAB PART No | CLAROSTAT PART No | IRC PART No | MALLORY PART No | |
| R1A | 330K | ½ | 35B1600 | B-80 | A47-500K-Z | Q33-133 | TA331A | Volume |
| B | Shaft | | | Not Req. | PS-3 | Not Req. | US-38 | |
| C | Switch | | | KS-1 | SWE-13 | TS-1 | US-38 | |
| R2A | 1500Ω | ½ | 35B1599 | AB-S15 | | QT-109 | UB | Contrast |
| B | Shaft | | | AK-3 | | Not Req. | Not Req. | |
| R3A | 5Meg | ½ | 35B1403 | AB-S8 | | QT-145 | TA5031 | Brightness |
| B | Shaft | | | AK-3 | | Not Req. | Not Req. | |
| R4A | 75K | ½ | 35B1403 | AB-S5 | A47-75K-S | QU-135 | PTA5L | Horiz. Hold |
| B | Shaft | | | AK-19 | | TQ | Not Req. | |
| C | 1.5Meg | ½ | | AB-743 | A47-1.5Meg-S | QU-139 | PTA35L | Vert. Hold |
| D | Shaft | | | AK-19 | | TQ | Not Req. | |
| R5A | 1Meg | ½ | 35B1404 | AB-75 | A47-1Meg-S | | | Vert. Lin. |
| B | Shaft | | | AK-19 | | | | |
| C | 1Meg | ½ | | AB-98 | A47-1Meg-S | | | Height With 1Meg stop |
| D | Shaft | | | AK-19 * | | | | |

* Use a 1Meg resistor in series with the right hand terminal.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | CORONADO PART No | IRC PART No | |
| R7 | 330K | | 23X20X324K | BTS-320K | |
| R8 | 12K | | 23X20X123K | BTS-12K | |
| R9 | 4700Ω | | 23X20X472K | BTS-4700 | |
| R10 | 4700Ω | | 23X20X472K | BTS-4700 | |
| R11 | 220K | | 23X20X224K | BTS-220K | |
| R12 | 2200Ω | | 23X20X222K | BTS-2200 | |
| R13 | 4700Ω | | 23X20X472K | BTS-4700 | |
| R14 | 10Ω | | 23X20X532K | BTS-15K | |
| R15 | 330Ω | | 23X20X231K | BTS-220 | |
| R16 | 1Meg | | 23X20X105S | BTS-1Meg | |
| R17 | 10K | | 23X20X103K | BTS-10K | |
| R18 | 150Ω | | 23X20X151K | BTS-150 | |
| R19 | 5Ω | | 23X20X509K | BTS-56 | |
| R20 | 150Ω | | 23X20X151K | BTS-150 | |
| R21 | 180Ω | | 23X20X181K | BTS-180 | |
| R22 | 68000Ω | | 23X20X683K | BTS-6800 | |
| R23 | 2. 7Meg | | 23X20X275K | BTS-2. 7Meg | |
| R24 | 3. 3Meg | | 23X20X335K | BTS-3. 3Meg | |
| R25 | 3300Ω | 7 | 24A1J33 | PW1-3300 | |
| R26 | 27K | | 23X20X273K | BTS-27K | |
| R27 | 120K | | 23X20X244K | BTS-220K | |
| R28 | 100K | | 23X20X104K | BTS-100K | |
| R29 | 33K | | 23X20X333K | BTS-33K | |
| R30 | 680K | | 23X20X684K | BTS-680K | |
| R31 | 270K | | 23X20X274K | BTS-270K | |
| R32 | 680K | | 23X20X684K | BTS-680K | |
| R33 | 680Ω | | 23X20X681K | BTS-680 | |
| R34 | 2200Ω | | 23X20X222K | BTS-2200 | |
| R35 | 180Ω | | 23X20X181K | BTS-120 | |
| R36 | 27K | 1 | 23X20X273K | BTA-27K | |
| R37 | 150Ω | | 23X20X151K | BTS-150 | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | CORONADO PART No | IRC PART No | |
| R38 | 15K | | 23X20X153K | BTS-15K | |
| R39 | 12K | 8 | 23X20X123K | BTA-12K | |
| R40 | 18K | 1 | 23X20X183K | BTA-18K | |
| R41 | 68K | | 23X20X683K | BTS-68K | |
| R42 | 100K | | 23X20X104K | BTS-100K | |
| R43 | 470K | | 23X20X474K | BTS-470K | |
| R44 | 180K | | 23X20X184K | BTS-180K | |
| R45 | 100K | | 23X20X104K | BTS-100K | |
| R46 | 100K | | 23X20X104K | BTS-100K | |
| R47 | 100K | | 23X20X104K | BTS-100K | |
| R48 | 1. 5Meg | | 23X20X155K | BTS-1.5Meg | |
| R49 | 100Ω | | 23X20X101K | | |
| R50 | 100Ω | | 23X20X101K | | |
| R51 | 220K | | 23X20X224K | BTS-220K | |
| R52 | 1Meg | | 23X20X105K | BTS-1Meg | |
| R53 | 4700Ω | | 23X20X472K | BTS-4700 | |
| R54 | 1Meg | | 23X20X105K | BTS-1Meg | |
| R55 | 1Meg | | 23X20X105K | BTS-1Meg | |
| R56 | 82K | | 23X20X823K | BTS-82K | |
| R57 | 12K | | 23X20X123K | BTS-12K | |
| R58 | 56K | | 23X20X563K | BTS-56K | Note 1 |
| R59 | 47K | | 23X20X473K | BTS-47K | |
| R60 | 390K | | 23X20X394K | BTS-390K | |
| R61 | 12000 5% | | 23X20X123J | BTS-12000 5% | |
| R62 | 33000 | | 23X20X333K | BTS-33000 | |
| R63 | 390K | | 23X20X394K | BTS-390K | |
| R64 | 47K | | 23X20X473K | BTS-47K | |
| R65 | 180Ω | | 23X20X181K | BTS-180 | |
| R66 | 6800Ω | | 23X20X682K | BTS-6800 | |
| R67 | 39Ω | 10 | 24-1098 | 1.2A4-35 | |
| R68 | 4.7Ω | 5 | 24S1U5 | | |

Note 1. Some versions may use a 75K, 68K, 82K or an 62K paralleled by a 150K in this application.

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | CORONADO PART No. | Halldorson PART No. | Merit PART No. | RCA TYPE No | Rom PART No. | Stancor PART No. | Thordorson PART No. | Triad PART No |
| T1 | Horiz Output Trans | 55-307 | | | | | | | |
| T2 | Vert Output Trans. | 55-306 | | | | | | | |
| T3A | Yoke -Horiz. (24.5MH) ($90^0$) Vert. (1.5MH) | 55-396 | 21900 ① | | | | | | |
| M5 | Rear Cover & Centering Device | 21-265 | | | | | | | |

① Connect #1 to plate, #2 to screen, #7 to yoke terminal #4, #10 to yoke terminal #8.

## SPEAKER

| ITEM No. | TYPE | | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP | | CORONADO PART No. | QUAM PART No. | |
| SP1 | 3½" | PM | 3-4Ω | 85C196 | | 3A07 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | CORONADO PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | 1st Video IF | 51-2187 | | | | |
| L2 | 2nd Video IF | 51-2188 | | | | |
| L3 | 3rd Video IF | 50-588 | | | | |
| L4 | RF Choke | 53A307 | 19-1098 | | 4634 | 18 Microhenries |
| L5 | Shunt Peaking Coil | 51-2102 | 19-3680 | | 6148 | 710 Microhenries |
| L6A | 4. 5MC Trap | 51B1995 | | | | |
| B | 1st Sound IF | | | | | |
| L7 | Shunt Peaking Coil | 51-2101 | 19-4600a | | 6134a | 395 Microhenries; Wound on 3300Ω resistor. |
| L8 | Series Peaking Coil | 51-2184 | 19-3160 * | | 6130 * | 180 Microhenries, wound on 27K resistor |
| L9 | 2nd Sound IF | 51-2166 | | | | |
| L10 | Quadrature Coil | 51B1957 | | | 1480 | |
| L11 | RF Choke | 53-343 | | | | 7.5 Microhenries; SRC part #CLA |

* Parallel with 3900Ω resistor
* Parallel with 27K resistor.

## TRANSFORMER (HORIZ. OSC.)

| ITEM No. | DC RES | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | CORONADO PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | RCA TYPE No. | Rom PART No. | Thordorson PART No. | |
| L12 | | | 51-2160 | 19-1575 | | 6230 ① | | | 82-4 | |

① Enlarge mounting hole. A 3900MMF capacitor may have to be used in place of .0056 (C56).

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE @ CURRENT 1000 $^0$C) | CORONADO PART No. | Halldorson PART No | Merit PART No | Stancor PART No | Thordorson PART No | Triad PART No |
| L13 | .270 A | 2Ω | .9 HY | 56A381 | | | | 26C44 ① | C-27X |

① Drill new mounting holes.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | CORONADO PART No | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Sync Coupler | 270MMF, 25MMF, 10000MMF, 330K, 2. 2Meg | 48A048 | Aerovox Centralab Sprague | PA-533 PC-382 ST-3 |

## RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | CORONADO PART No | FEDERAL PART No | GENERAL ELECTRIC PART No | INTERNATIONAL PART No | MALLORY PART No | SARKES TARZIAN PART No. | |
| M1 | 260A | 27C328 ① | 1022A ① | 1N1007 ② | R3350L- ① | 66350 ① | 350A ① | |
| M3 | | 27C326 ① | 1215 ① ③ | | 1TT ① ③ | | | |

① Selenium type. ② Germanium type. ③ 2 Required

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|
| | | CORONADO PART No. | SYLVANIA PART No. | |
| M2 | 1N60 | 19C1864 * | 1N60 | Video Detector (Pigtail) |

* Alternate part #19C1980.

## MISCELLANEOUS

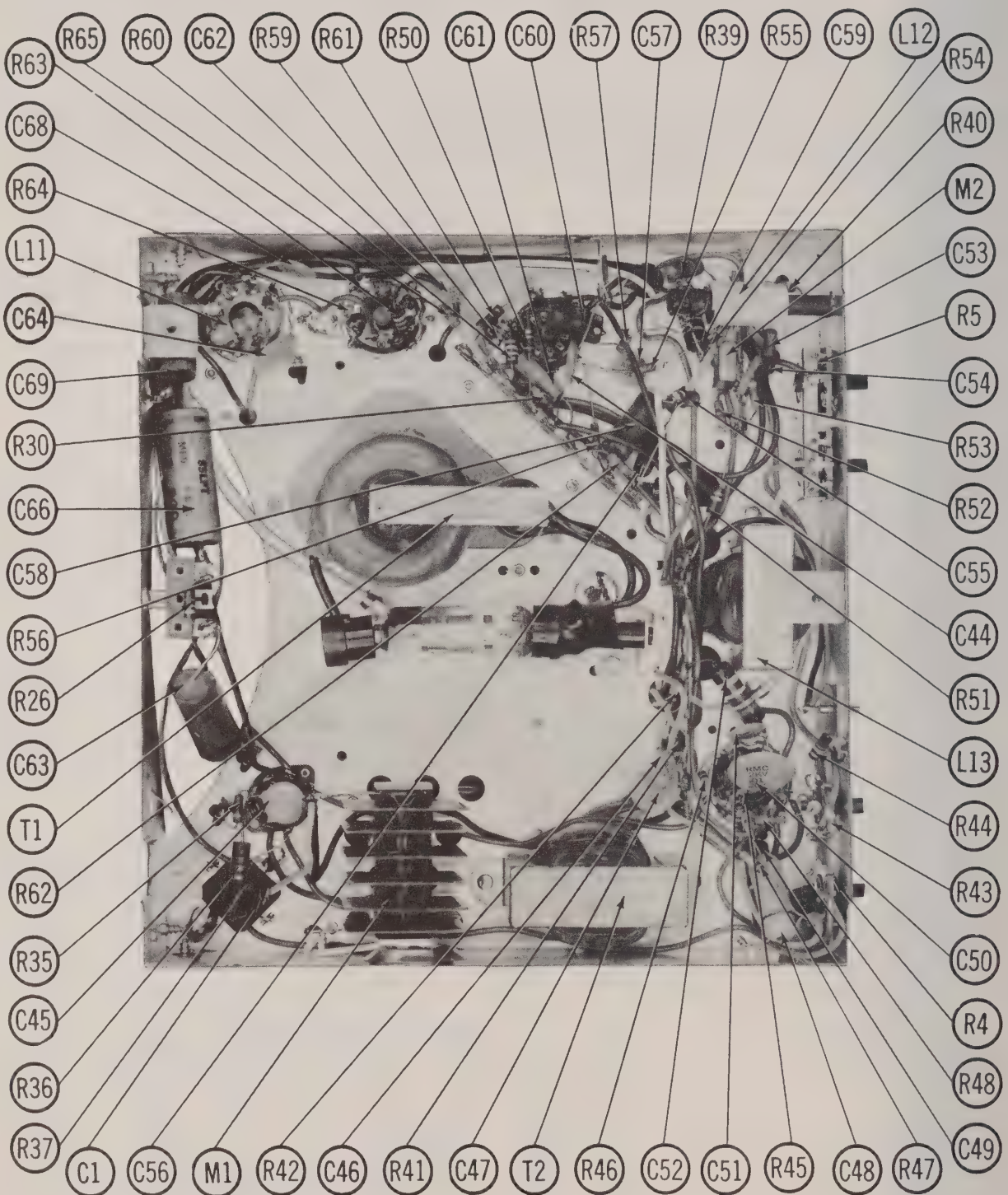
| ITEM No. | PART NAME | CORONADO PART No. | NOTES |
|---|---|---|---|
| M4 | Tuner | 1-3067 | VHF |
| M5 | Centering Device | 21-265 | Includes yoke rear cover |
| M6 | Ion Trap | 21-151 | |

## CABINETS & CABINET PARTS

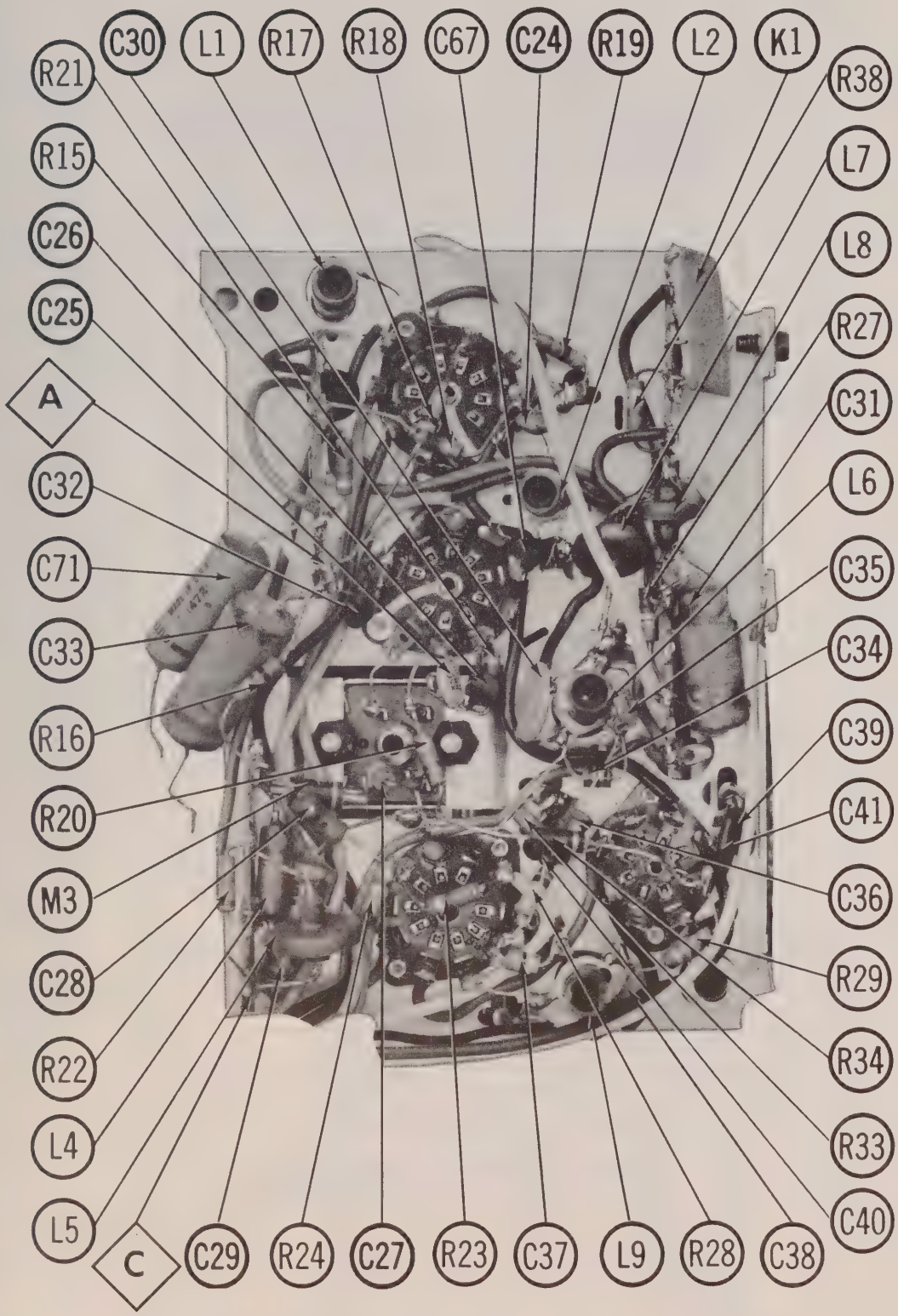
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 23D535 | |
| Handle | 5A3853 | |
| Handle | 41A8003 | Complete Assy. |
| Knob | 15A1060 | Channel Selector |
| Knob | 15C1068 | Fine Tuning |
| Knob | 15B1057 | Control, 3 used |
| Cabinet | 41-1018 | |

CORONADO MODELS TV3-9395A




**CHASSIS-BOTTOM VIEW**



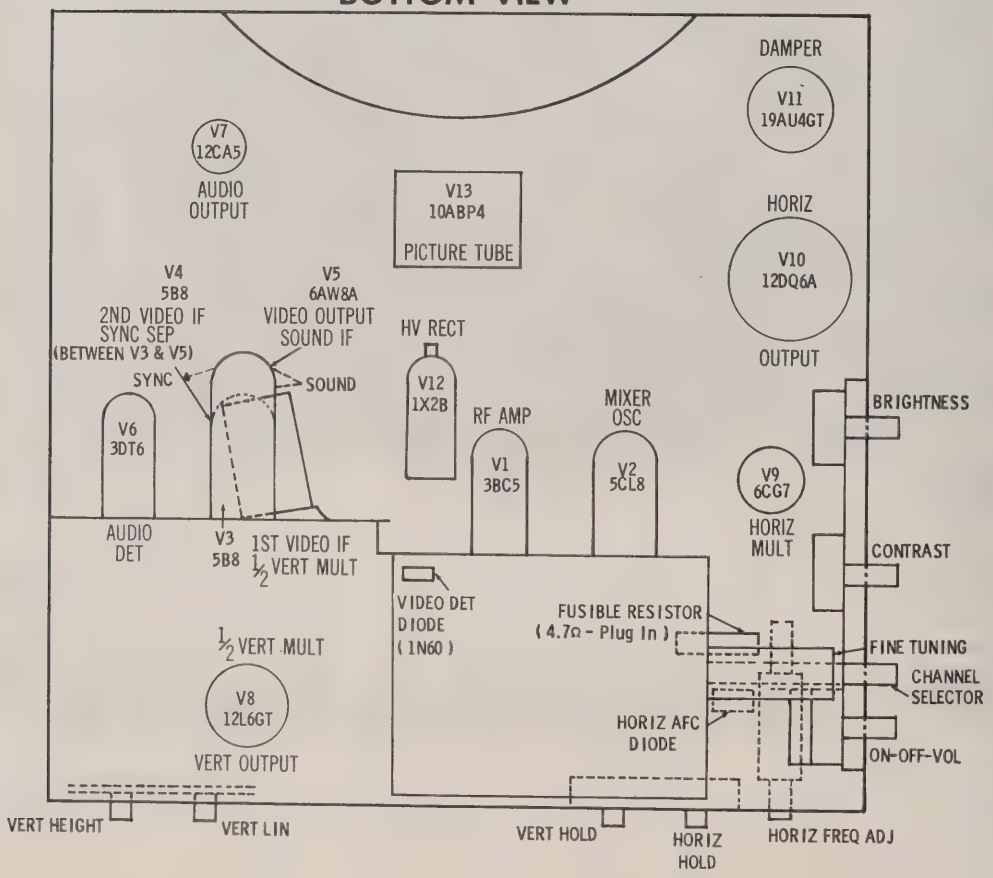

VERTICAL CHASSIS BOTTOM VIEW
SET 373 FOLDER 2

## RESISTANCE MEASUREMENTS

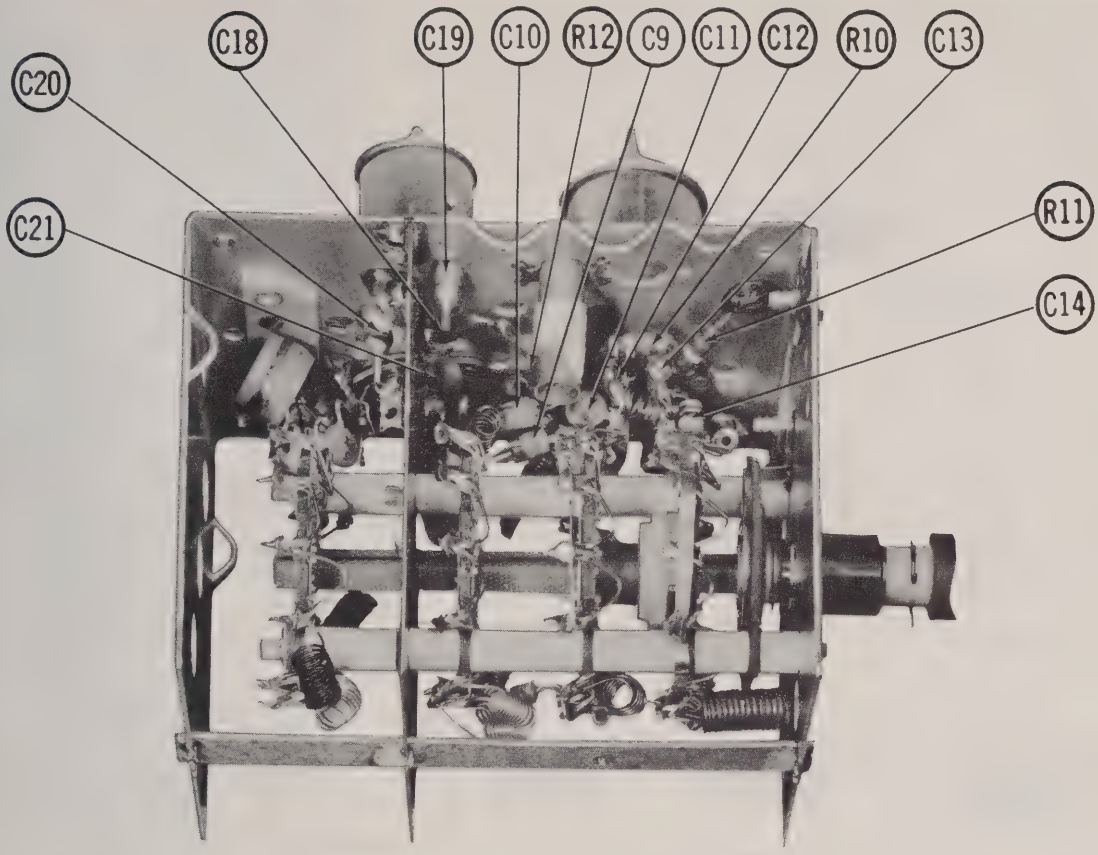
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 3BC5 | 1Meg | 0Ω | 6.5Ω | 7Ω | †240Ω | †5000Ω | 0Ω | | |
| V2 | 5CL8 | 15K | †5000Ω | 0Ω | 7.5Ω | 7Ω | †2400Ω | †240Ω | 0Ω | 220K |
| V3 | 5B8 | 0Ω | • 1.3Meg | •†2.7Meg | 6.5Ω | 6.5Ω | 1Meg | 56Ω | †170Ω | †170Ω |
| V4 | 5B8 | 0Ω | 2.2Meg | †12K | 5.5Ω | 5Ω | 0Ω | 180Ω | †170Ω | †170Ω |
| V5 | 6AW8A | 0Ω | 100K | †35K | 3.5Ω | 5Ω | • 10Ω | 1.4Meg | †22Ω | †3300Ω |
| V6 | 3DT6 | 4.2Ω | 680Ω | †3.5Ω | 3Ω | ‡700K | †2200Ω | 680K | | |
| V7 | 12CA5 | 120Ω | 270K | 9Ω | 7.5Ω | 270K | †22Ω | †430Ω | | |
| V8 | 12L6GTB | TP | 10.5Ω | †260Ω | †22Ω | •2.3Meg | TP | 9Ω | 0Ω | |
| V9 | 6CG7 | †47K | •75K | 1200Ω | 1.5Ω | 3Ω | †12K | 1.8Meg | 1200Ω | |
| V10 | 12DQ6A | TP | 10.5Ω | TP | †200Ω | 440K | TP | 11.5Ω | 0Ω | TOP CAP ‡13Ω |
| V11 | 19AU4GT | NC | TP | 480K | NC | †22Ω | TP | 13Ω | 11.5Ω | |
| V12 | 1X2B | PINS 1 THRU 9 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP ‡453Ω |
| V13 | 10ABP4 | 0Ω | 3Ω | PIN 6 ‡27K | PIN 10 ‡27K | PIN 11 •†120K | PIN 12 1.5Ω | | | |

† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V11.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT

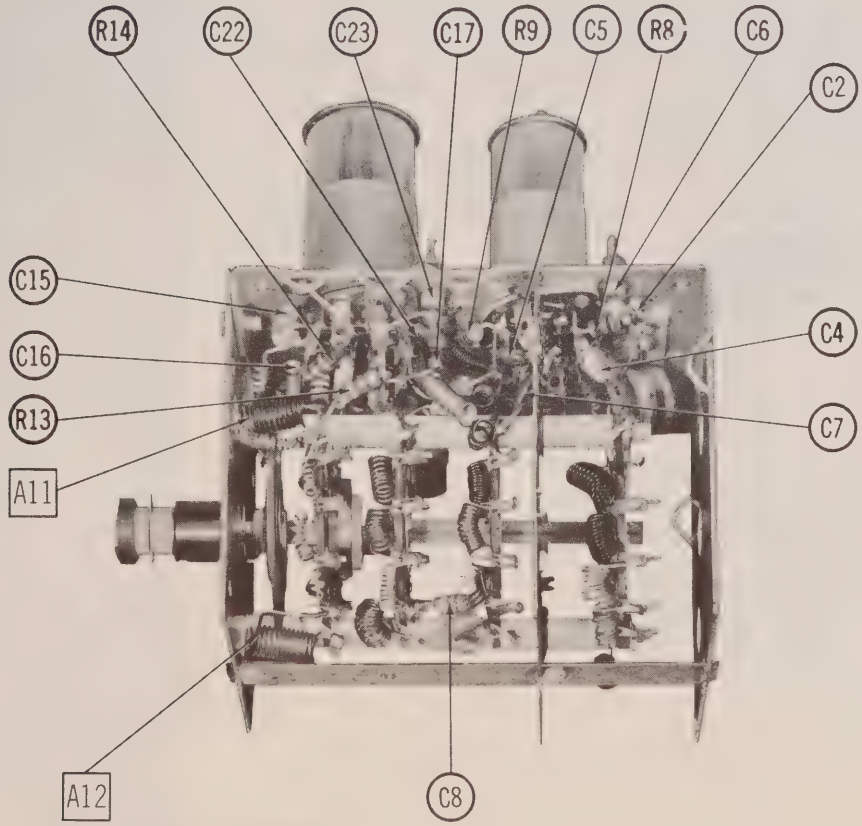
## BOTTOM VIEW



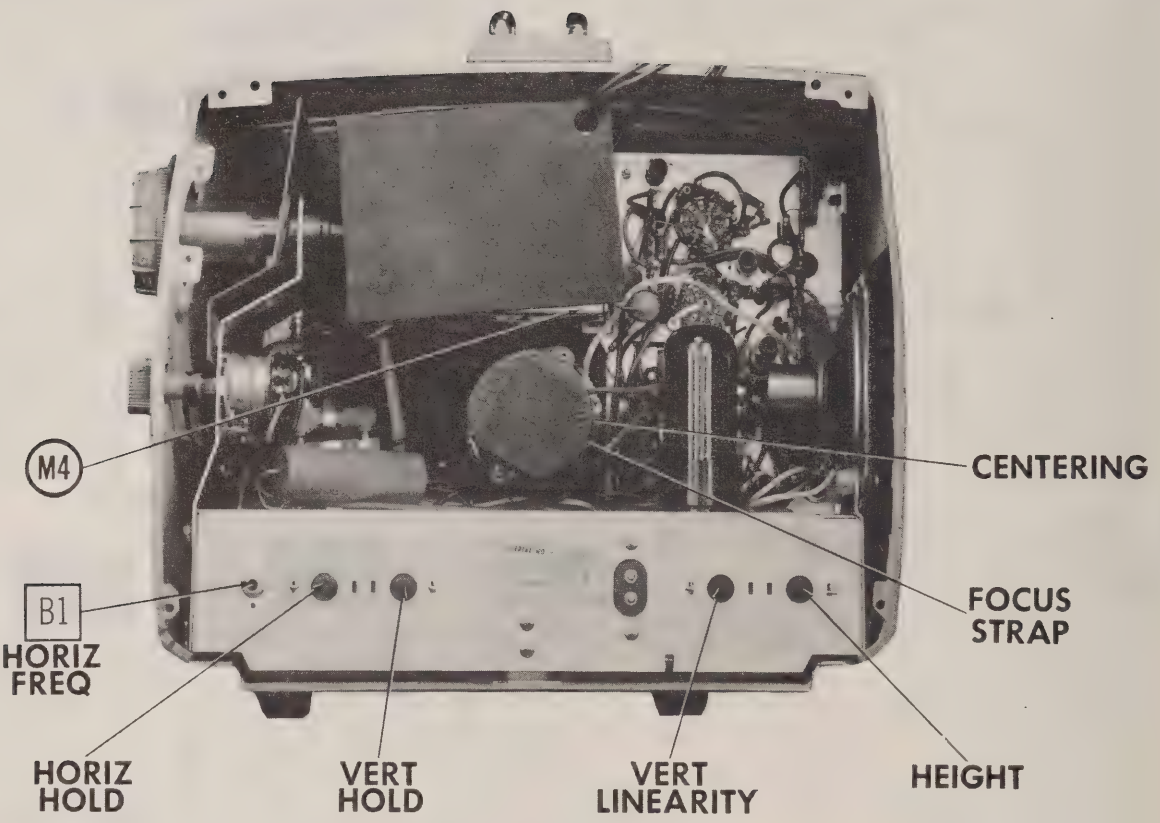

## TUBE PLACEMENT CHART




**RF TUNER-LEFT SIDE**




**RF TUNER-RIGHT SIDE**

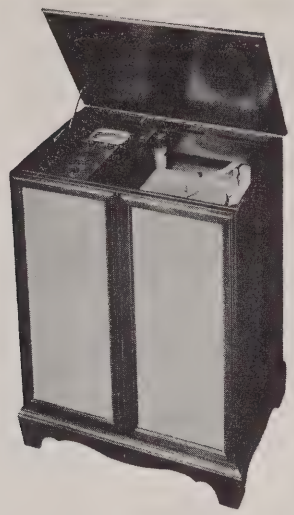



## CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
3. Check other stations and if necessary, retouch B1 for best sync action on all channels.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

DUMONT CHASSIS
RA-378, RA-379

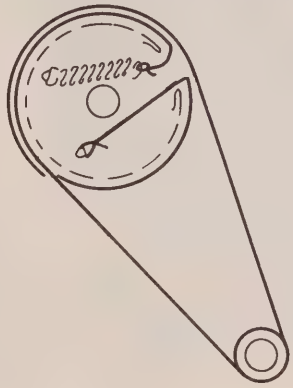
| | |
|---|---|
| TRADE NAME | Dumont Chassis RA-378, RA-379 |
| MANUFACTURER | Allen B. Dumont Laboratories Inc., 257 Sixteenth Ave., Passaic, N. J. |
| TYPE SET | AC Operated AM Receiver With 4 Speed Automatic Record Changer |
| TUBES (Seven) | Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC, 6C4 AF Amplifier, 12AX7 AF Amp. - Phase Inv., (2) 50C5 Output |
| POWER SUPPLY | 110-120 Volts AC-60 Cycles |
| RATING | .25 Amp. @ 117 Volts AC (Without Motor) |
| TUNING RANGE—BROADCAST | 540KC-1620KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | | Loop | 455KC (400~ Mod.) | Tuning gang fully open. | Across C2. | A1, A2, A3, A4 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 2. | | " | 1620KC | " | " | A5 | " |
| 3. | | " | 1400KC | Tune to 1400KC signal. | " | A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat step 2. |
| 4. | | " | 600KC | 600KC | " | A7 | Adjust A7 for maximum deflection only if necessary. |

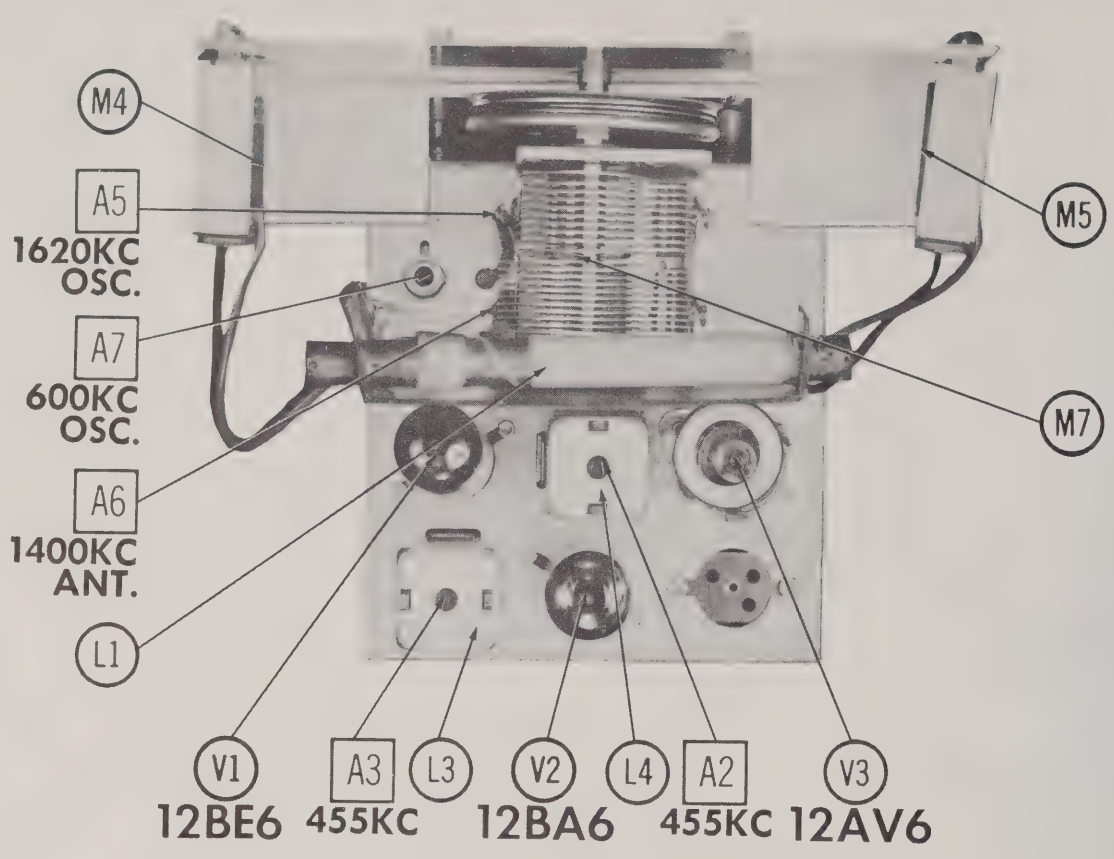
FOR SERVICE INFORMATION ON RECORD CHANGER PART #19035071 - SEE SIMILAR V-M MODEL 1200A-PHOTOFACT SET 353 FOLDER 16.



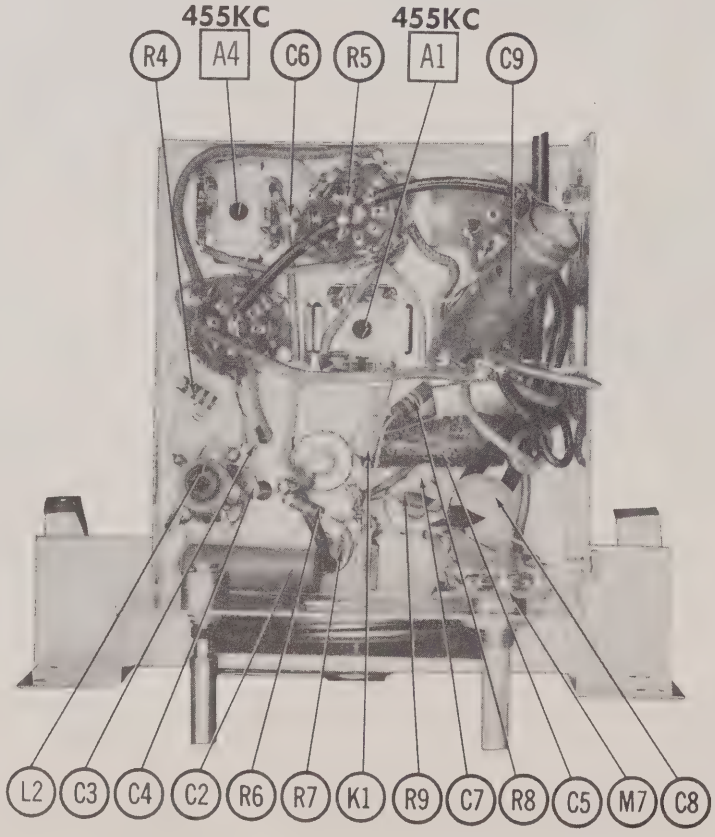

## DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America




TUNER CHASSIS - TOP VIEW




TUNER CHASSIS - BOTTOM VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Converter | 12BE6 | |
| V2 | IF Amplifier | 12BA6 | |
| V3 | Det. -AVC | 12AV6 | |
| V4 | AF Amplifier | 6C4 | |

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V5 | AF Amp. - Phase Inv. | 12AX7 | |
| V6 | Output | 50C5 | |
| V7 | Output | 50C5 | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA DUMONT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | 80 | 150 | 03160062 | PRS150V80-4020 | BBRT84215 | TCT3117 | TDLT-7 | FMT-315 | R2423 * |
| B | 20 | 150 | | | BBR20-150 | TC45 | TD-20-150 | FMD-1530 | |
| C | 60 | 150 | | | | | | | |

* Non Catalog Item.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA DUMONT PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C2 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C3 | 47 | | 03153570 | N750-SI47 | TCN-47 | C10Q47U | TC7-47 | NT-5447 | 5TCU-Q47 | N750 10% |
| C4 | 6.8 | | 03154050 | NPO-SI6.8 | TCZ-6R8 | C10V68C | TCO-6.8 | ZT-5568 | 5TCCB-V68 | NPO 5% |
| C5 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C6 | 8.2 | | 03133950 | NPO-SI8.2 | TCZ-8.2 | C10V82C | TCO-8.2 | | 5TCCB-V82 | 10% |
| C7 | 220 | | 03152020 | SI220 | DD-221 | L10T22 | ED-220 | UC-5322 | 5GA-T22 | |
| C8 | 1000 | | 03153800 | BPD-001 | DD-102 | BYA6D1 | ED-1000 | DC521 | 5HK-D1 | |
| C9 | .047 | 400 | 03141100 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C10 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C11 | 10000 | | 03015920 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-D1 | |
| C12 | .022 | 200 | 03140320 | BPD-02 | DD-203 | CUB4S22 | ED-02 | GEM-4122 | 2TM-S22 | |
| C13 | .01 | 200 | 03140300 | BPD-01 | D6-103 | CUB4S1 | GP-10000 | GEM-411 | 4TM-S1 | |
| C14 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C15 | 68 | | 03133050 | SI68 | D6-680 | LT6Q68 | GP-68 | UC-5468 | 5GA-Q68 | |
| C16 | .01 | 200 | 03140300 | BPD-01 | D6-103 | CUB4S1 | GP-10000 | GEM-411 | 4TM-S1 | |
| C17 | 270 | | 03166590 | NPO-SI270 | TCZ-270 | L10T27 | ED-270 | | MS-327 | 10% |
| C18 | .022 | 200 | 03140320 | BPD-02 | D6-203 | CUB4S22 | ED-02 | GEM-4122 | 2TM-S22 | |
| C19 | .022 | 200 | 03140320 | BPD-02 | D6-203 | CUB4S22 | ED-02 | GEM-4122 | 2TM-S22 | |
| C20 | 470 | | 03166640 | 1464-00047 | D6-471 | 5R5T47 | ED-470 | | MS-347 | 10% |
| C21 | 100 | | 03133060 | SI100 | DD-101 | L10T1 | GP-100 | UC-531 | 5GA-T1 | |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DUMONT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 1Meg | 1/4 | 01058362 | BT-73 | A47F4-1Meg | Q19-137X | UT-438 | Volume, Tap @ 350K |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| C | Switch | | | KB-1 | SWE-12 | 76-1 | US-26 | |
| R2A | 1Meg | 1/4 | 01011185 | B-70 | A47-1Meg-Z | Q13-137 | U53 | Treble |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |
| R3A | 2Meg | 1/4 | 01011186 | B-76 | A47-2Meg-Z | Q13-139 | U55 | Bass |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | Not Req. | |

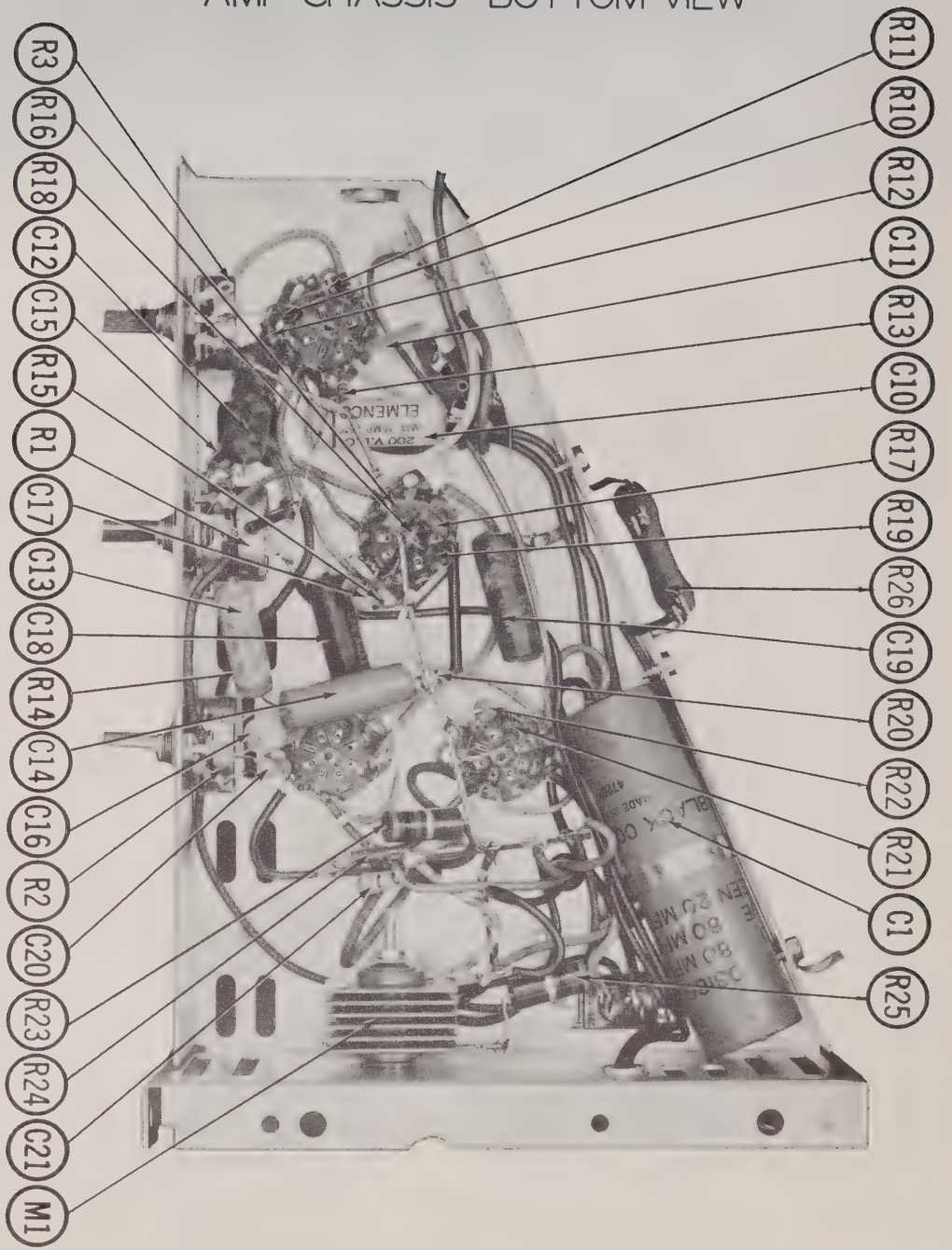
## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING OHMS | RATING WATT | REPLACEMENT DATA DUMONT PART No. | IRC PART No. | NOTES |
|---|---|---|---|---|---|
| R4 | 47K | | 02251970 | BTS-47K | |
| R5 | 68Ω | | 02251630 | BTS-68 | |
| R6 | 2.2Meg | | 02252170 | BTS-2.2Meg | |
| R7 | 270K | | 02252060 | BTS-270K | |
| R8 | 270K | | 02252060 | BTS-270K | |
| R9 | 1000Ω | | 02252420 | BTS-1000 | |
| R10 | 150K | | 02252550 | BTS-150K | |
| R11 | 220K | | 02252050 | BTS-220K | |
| R12 | 22K | | 02251930 | BTS-22K | |

| ITEM No. | RATING OHMS | RATING WATT | REPLACEMENT DATA DUMONT PART No. | IRC PART No. | NOTES |
|---|---|---|---|---|---|
| R13 | 3900Ω | | 02251840 | BTS-3900 | |
| R14 | 22K | | 02251930 | BTS-22K | |
| R15 | 51K 5% | | 02250890 | BTS-51K 5% | |
| R16 | 3300Ω | | 02251830 | BTS-3300 | |
| R17 | 33K | | 02251950 | BTS-33K | |
| R18 | 51K 5% | | 02250890 | BTS-51K 5% | |
| R19 | 2200Ω 5% | | 02251810 | BTS-2200 5% | |
| R20 | 390K | | 02252080 | BTS-390K | |
| R21 | 470K | | 02252090 | BTS-470K | |

## AMP CHASSIS - BOTTOM VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (cont)

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | DUMONT PART No. | IRC PART No. | |
| R22 | 82Ω | 1 | 02254640 | BTA-82 | |
| R23 | 1000Ω | 2 | 02257770 | BTB-1000 | |
| R24 | 6200Ω 5% | | 02250670 | BTS-6200 5% | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | DUMONT PART No. | IRC PART No. | |
| R25 | 12Ω | 2 | 02257540 | | |
| R26 | 500Ω | 30 | 02136550 | 4 1/2E-500 | Note 1 |

Note 1. Not used in Chassis RA-379.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC.1 | DUMONT PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 3800Ω CT | 2.8Ω | 20010401 | | | | | | |
| | Turns | Ratio | | | | | | | |
| | PRI. | SEC. 2 | | | | | | | |
| | 20: | 1 | | | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | DUMONT PART No. | QUAM PART No. | |
| SP1 | 3 1/2" | PM | 17Ω | 18003784 ①③ | 3A1ST | ① Used in Chassis RA-379 |
| | | | | 18003782 ①② | 3A1ST | ② Alternate Part Number. |
| SP2 | 10" | PM | 3-4Ω | 18003851 ①④ | 10A10XZ3.2 | ③ Part #18003883 Used in Chassis RA-378 |
| | | | | | | ④ Part #18003852 Used in Chassis RA-378 |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | DUMONT PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Loop Stick | 22002501 | | | | |
| L2 | Osc. Coil | 21015541 | 14-1073 | BC-393 | 70-Osc. | |
| L3 | Input IF | 21013231 | 16-6758 | BC-352 | 12-C1 | |
| L4 | Output IF | 21013231 | 16-6758 | BC-353 | 12-C2 | |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | DUMONT PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Diode RF Filter | 100MMF, 100MMF, 47K | 88001751 | Aerovox | PA-97-1 |
| | | | | Centralab | PC-50 |
| | | | | Cornell-Dubilier | 111TMI |
| | | | | Erie | 1403-01 |
| | | | | Sprague | D-1 |

# PARTS LIST AND DESCRIPTIONS (Continued)

## SELENIUM RECTIFIER

| ITEM No. | RATING | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | DUMONT PART No. | FEDERAL PART No. | INTERNATIONAL PART No. | MALLORY PART No. | SARKES TARZIAN PART No. | |
| M1 | .100A | 26001931 | 1005A | RS150 | 6S150 | 150 | |

## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | | | | REMARKS |
|---|---|---|---|---|---|---|
| | DUMONT PART No. | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | |
| | | CARTRIDGE | NEEDLE | CARTRIDGE | MOUNT | |
| M2 | | 122-TS | N8-1 & N8-3 | 56 | PT-1 | |

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW:

## PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

| ITEM No. | REPLACEMENT DATA | | | REMARKS |
|---|---|---|---|---|
| | DUMONT PART No. | JENSEN PART No. | WALCO PART No. | |
| M3 | | † CRA-55 or<br>♦ CRA-55DP<br>and<br>† CRA-55LP or<br>♦ CRA-55LPD | † W-64S or<br>♦ W-64D<br>and<br>† W-64MGS or<br>♦ W-64MGD | † Jewel<br>♦ Diamond |

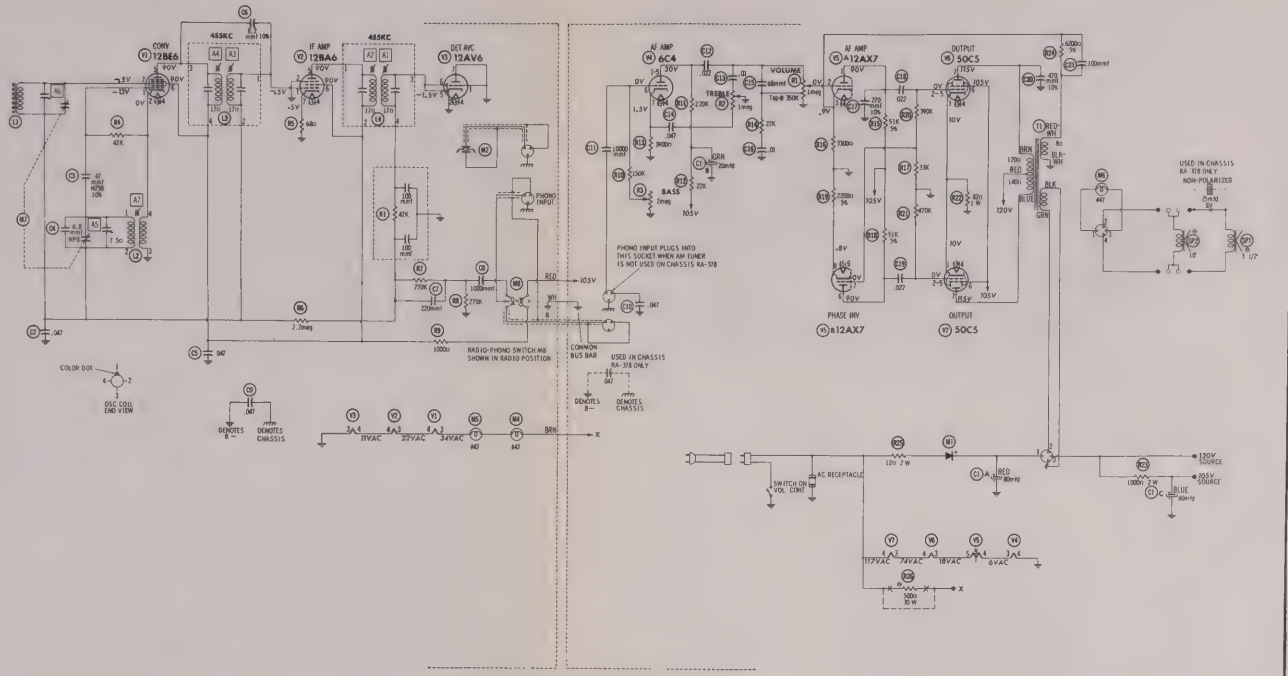
## MISCELLANEOUS

| ITEM No. | PART NAME | DUMONT PART No. | NOTES |
|---|---|---|---|
| M4 | Dial Light | 12001310 | #47 |
| M5 | Dial Light | 12001310 | #47 |
| M6 | Jewel Light | 12001310 | #47 |
| M7 | Tuning Cap. | 03260621 | 2 Gang (Ant. 22-330MMF, Osc. 16-135MMF) |
| M8 | Switch | 05012461 | Radio-Phono (Rotary Wafer Type) |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Bezel | 64012161 | Ch. RA379 Only |
| Knob | 45006501 | |
| Window (Plastic) | 45007591 | Ch. RA379 Only |
| Dial Plate | 45007581 | |
| Dial Pointer | 45001951 | |




● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured at 1000 ohms per volt.
3. Socket connections are shown as bottom views.
4. Measured values are from socket pin to common negative
5. Line voltage maintained at 117 volts for voltage readings
6. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings
7. Volume control at maximum, no signal applied for voltage measurements

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 47K | 7Ω | 32Ω | 22Ω | 11Ω | ↑2000Ω | 2.7MEG | | |
| V2 | 12BA6 | 2.7MEG | 0Ω | 22Ω | 11Ω | ↑ 2000Ω | ↑2000Ω | 68Ω | | |
| V3 | 12AV6 | 0Ω | 0Ω | 0Ω | 11Ω | 58.5K | 58.5K | 0Ω | | |
| V4 | 6C4 | ↑240K | TP | 13Ω | 0Ω | ↑240K | 150K | 390Ω | | |
| V5 | 12AX7 | 1.52K | 0Ω | 1300Ω | 13Ω | 20Ω | 1.52K | 33K | 2200Ω | 16Ω |
| V6 | 50C5 | 82Ω | 420K | 20Ω | 56Ω | 420K | ↑1000Ω | ↑125Ω | | |
| V7 | 50C5 | 82Ω | 470K | 56Ω | 95Ω | 470K | ↑1000Ω | ↑140Ω | | |

↑ MEASURED FROM OUTPUT OF W1
NC NO CONNECTION
TP TIE-POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

# DUMONT CHASSIS RA392, RA393A

**IMPORTANT FILING NOTICE**

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a Deluxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

DUMONT CHASSIS
RA392, RA393A

| | |
|---|---|
| TRADE NAME | Dumont Chassis RA-392, RA-393 |
| MANUFACTURER | Allen B. Dumont Laboratories, Inc., 257 Sixteenth Ave., Paterson, N.J. |
| TYPE SET | Television Receiver |
| TUBES | Sixteen |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING 150 Watts, 1.2 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

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Tube Placement Chart (Top View) ..... 3


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DENVER, COLORADO

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DATE 10 – 57 SET 373 FOLDER 4

# DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from the side.
2. Remove 4 wood screws and the rear cover.
3. Remove the picture tube socket, ion trap, yoke clamp and 2 speaker leads.
4. Remove the wing bolt from the yoke bracket.
5. Remove 2 chassis bolts at the top of the chassis.
6. Remove 2 chassis bolts from the bottom.
7. Partially remove the chassis and remove the HV lead.
8. Remove the chassis.
9. Remove 2 speaker nuts and the speaker.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

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# SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom front edge of the cabinet holding the metal trim at the bottom of the safety glass. Remove the trim and the safety glass.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

WIDTH

The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSES

A 7.5Ω fusible resistor (R96) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

DUMONT CHASSIS
RA392, RA393A

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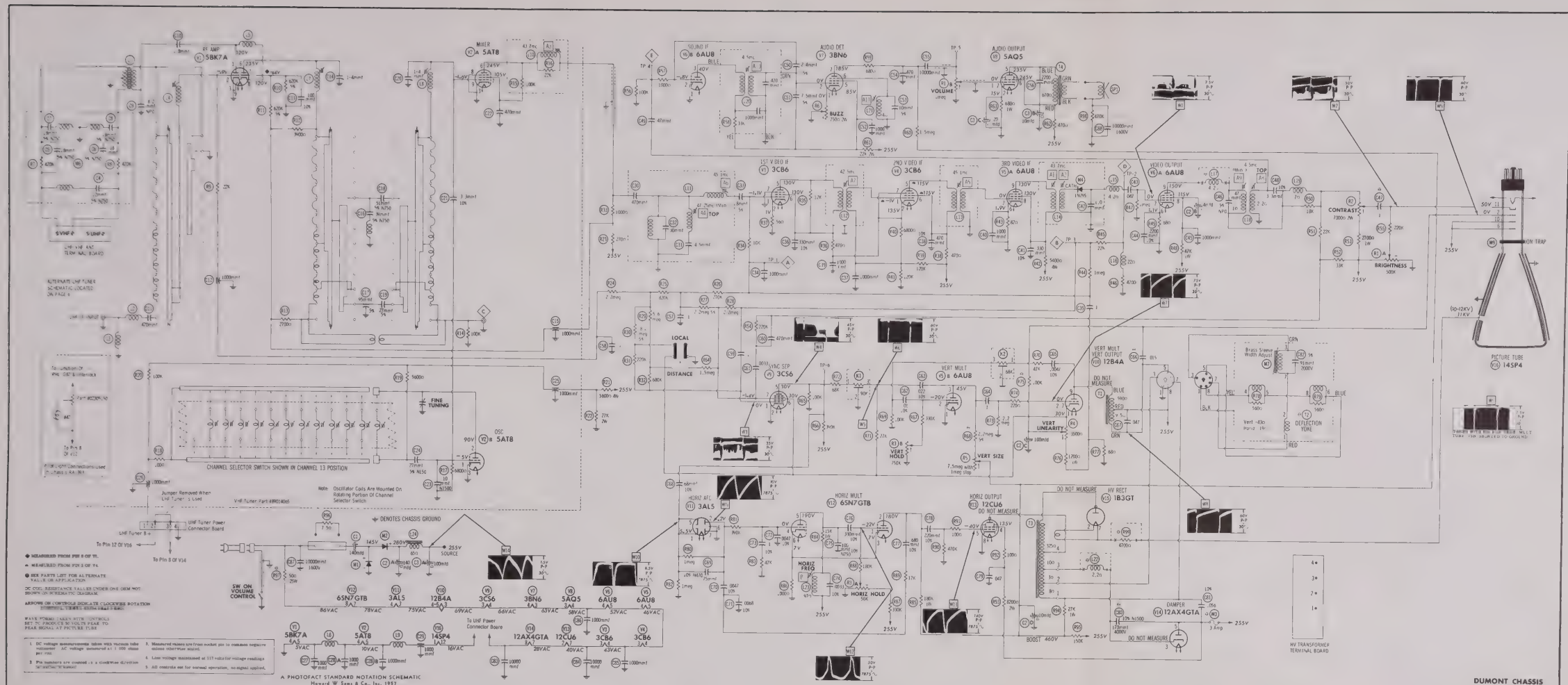
DUMONT CHASSIS
RA392, RA393A
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
FINE TUNING
LOCAL
DISTANCE
CONTRAST
BRIGHTNESS
VOLUME
VERT HOLD
VERT SIZE
VERT LINEARITY
HORIZ FREQ
HORIZ HOLD
BOOST 460V
SW ON VOLUME CONTROL
DO NOT MEASURE
PICTURE TUBE
V16 14SP4
DEFLECTION YOKE
ION TRAP
HV TRANSFORMER TERMINAL BOARD
OSC
V2 5AT8
MIXER
V1 A 5AT8
RF AMP
V1 5BK7A
SOUND IF
V6 B 6AU8
AUDIO DET
V7 3BN6
AUDIO OUTPUT
V9 5AQ5
1ST VIDEO IF
V3 3CB6
2ND VIDEO IF
V4 3CB6
3RD VIDEO IF
V5 A 6AU8
VIDEO OUTPUT
V6 A 6AU8
SYNC SEP
V9 3CS6
VERT MULT
V5 B 6AU8
VERT MULT VERT OUTPUT
V10 12B4A
HV RECT
V15 1B3GT
HORIZ AFC
V11 3AL5
HORIZ MULT
V12 6SN7GTB
HORIZ OUTPUT
V13 12CU6
DAMPER
V14 12AX4GTA
V1 5BK7A
V2 5AT8
V3 14SP4
V4 12AX4GTA
V5 12CU6
V6 3CB6
V7 3CB6
V8 6AU8
V9 6AU8
V10 12B4A
V11 3AL5
V12 6SN7GTB
V13 6AQ5
V14 3BN6
V15 6AU8
V16 3CB6
6VAC
90VAC
78VAC
75VAC
69VAC
66VAC
63VAC
58VAC
52VAC
46VAC
9VAC
90VAC
10VAC
26VAC
28VAC
40VAC
43VAC
255V SOURCE
UHF Tuner Power Connector Board
To Pin 12 Of V16
To Pin 8 Of V14
To UHF Power Connector Board
Jumper Removed When UHF Tuner Is Used
VHF Tuner Part #PR014065
Note: Oscillator Coils Are Mounted On Rotating Portion Of Channel Selector Switch
ALTERNATE UHF TUNER SCHEMATIC LOCATED ON PAGE 6
UHF VHF ANT TERMINAL BOARD
◆ MEASURED FROM PIN 8 OF V1.
▲ MEASURED FROM PIN 3 OF V4.
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS OR CONTROLS INDICATE CLOCKWISE ROTATION
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1 000 ohms per volt.
2. Pin numbers are counted - in a clockwise direction looking at the socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

# TUBE PLACEMENT CHART

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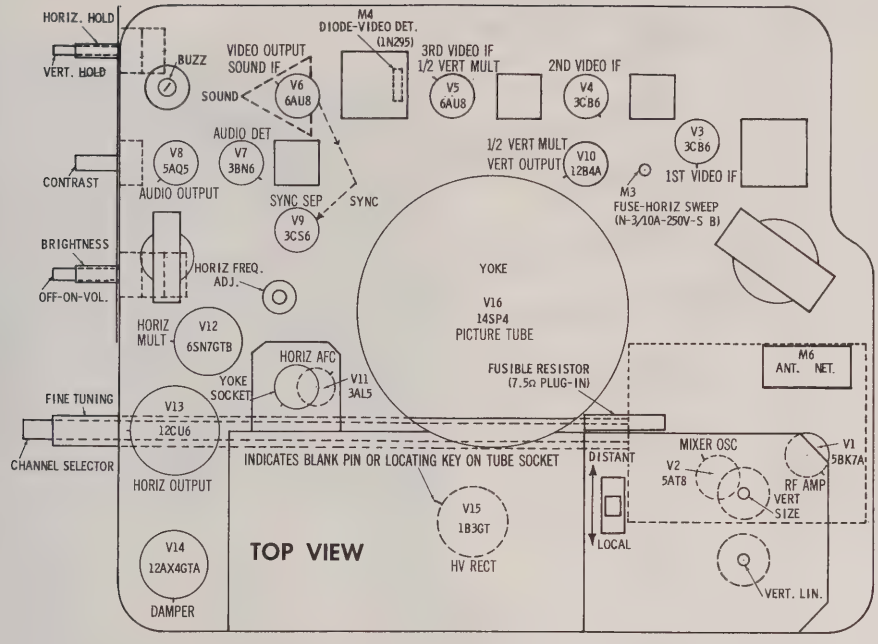



# TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

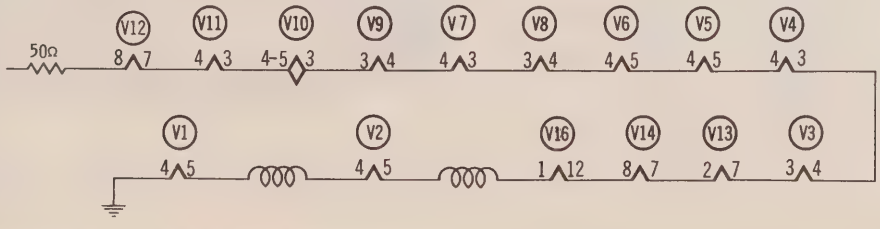
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R96), Rectifier (M1, M2)**

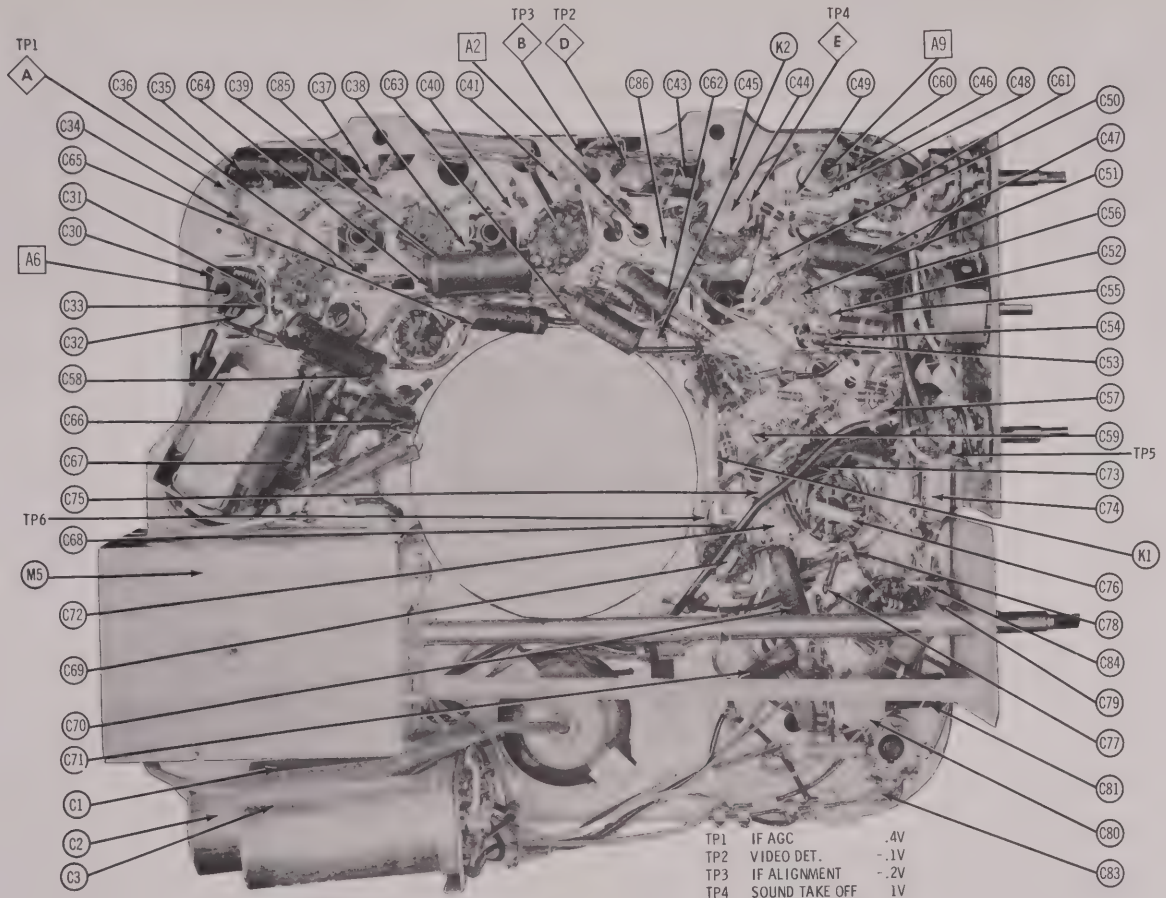
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M4), V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V16**
Has pic, no sound - **V6, V7, V8**

SYNC FAILURE
No vert. sync - **V9**
No horiz. sync - **V9, V11**
No vert. or horiz. sync - **V9**

SWEEP FAILURE
No raster, has sound - **Fuse (M3), V11, V12, V13, V14, V15, V16**
No vertical deflection - **V5, V10**
Poor vert. linearity or foldover - **V5, V10**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, M1, M2**
Vert. off freq. - **V5, V10**
Horiz. off freq. - **V12**

**This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).**






| | | |
|---|---|---|
| TP1 | IF AGC | .4V |
| TP2 | VIDEO DET. | -.1V |
| TP3 | IF ALIGNMENT | -.2V |
| TP4 | SOUND TAKE OFF | 1V |
| TP5 | SOUND ALIGNMENT | 0V |
| TP6 | AFC | 30V |

**CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION**

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (A). Positive to chassis.
Connect a clip lead from point (B) to chassis.
Disable the tuner oscillator by disconnecting the red lead from the tuner terminal board.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | Fig. 1 | High side thru network (Fig. 1) to point (C). Low side to chassis. | 43.7MC (Unmod) | 13 | DC probe to point (D). Common to chassis. | A1, A2, A3 | Adjust for maximum deflection. |
| 2. | " | " | 47.25MC | " | " | A4 | Adjust for MINIMUM deflection. |
| 3. | " | " | 45.1MC | " | " | A5, A6 | Adjust for maximum deflection. |
| 4. | " | " | 42.5MC | " | " | A7 | Adjust for maximum deflection. |
| 5. | " | " | 43.7MC | " | " | | Retouch A3 for maximum deflection. |

SOUND IF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 6. | .005MFD | High side to pin 7 (grid) of 6AU8 (V6). Low side to chassis. | 4.5MC (30% 400~ AM Mod) | Any non-interfering channel | DC probe thru 470K to point (E). Common to chassis. | A8 | Adjust for maximum deflection. |
| 7. | " | " | " | " | AC probe or vert. amp. of scope to pin 11 (cathode) of picture tube. Low or common to chassis. | A9 | Adjust for MINIMUM deflection. |
| 8. | Tune in a strong TV station and adjust A10 and A11 for maximum undistorted sound. Reduce signal strength until a hiss is heard in the sound and retouch A10 and A11 for maximum undistorted sound. Adjust buzz control (R6) for best sound and MINIMUM buzz. | | | | | | |

VHF OSCILLATOR ALIGNMENT

Turn the set on and allow 15 minute warm-up period.
Set the fine tuning to the center of its range.
Switch channel selector to each channel in turn needing oscillator adjustments and adjust the oscillator adjustment screw reached thru a hole in the front of the tuner for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

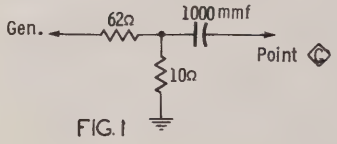
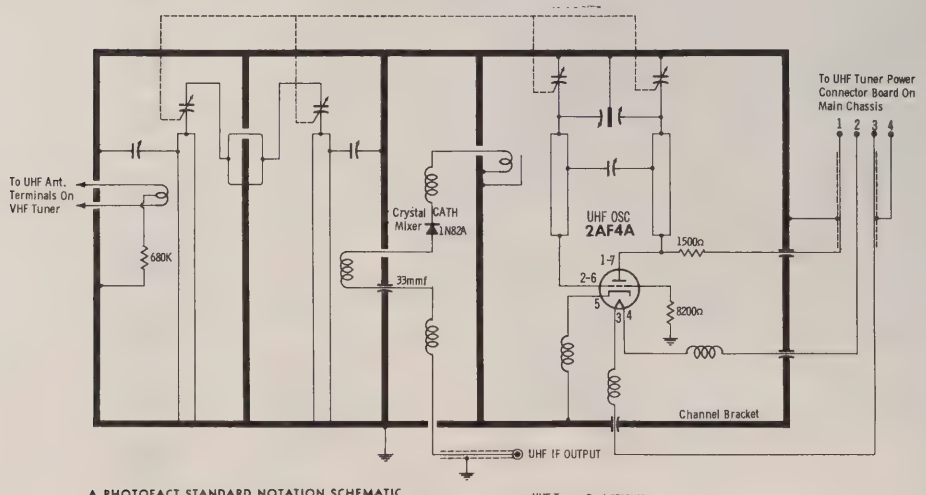


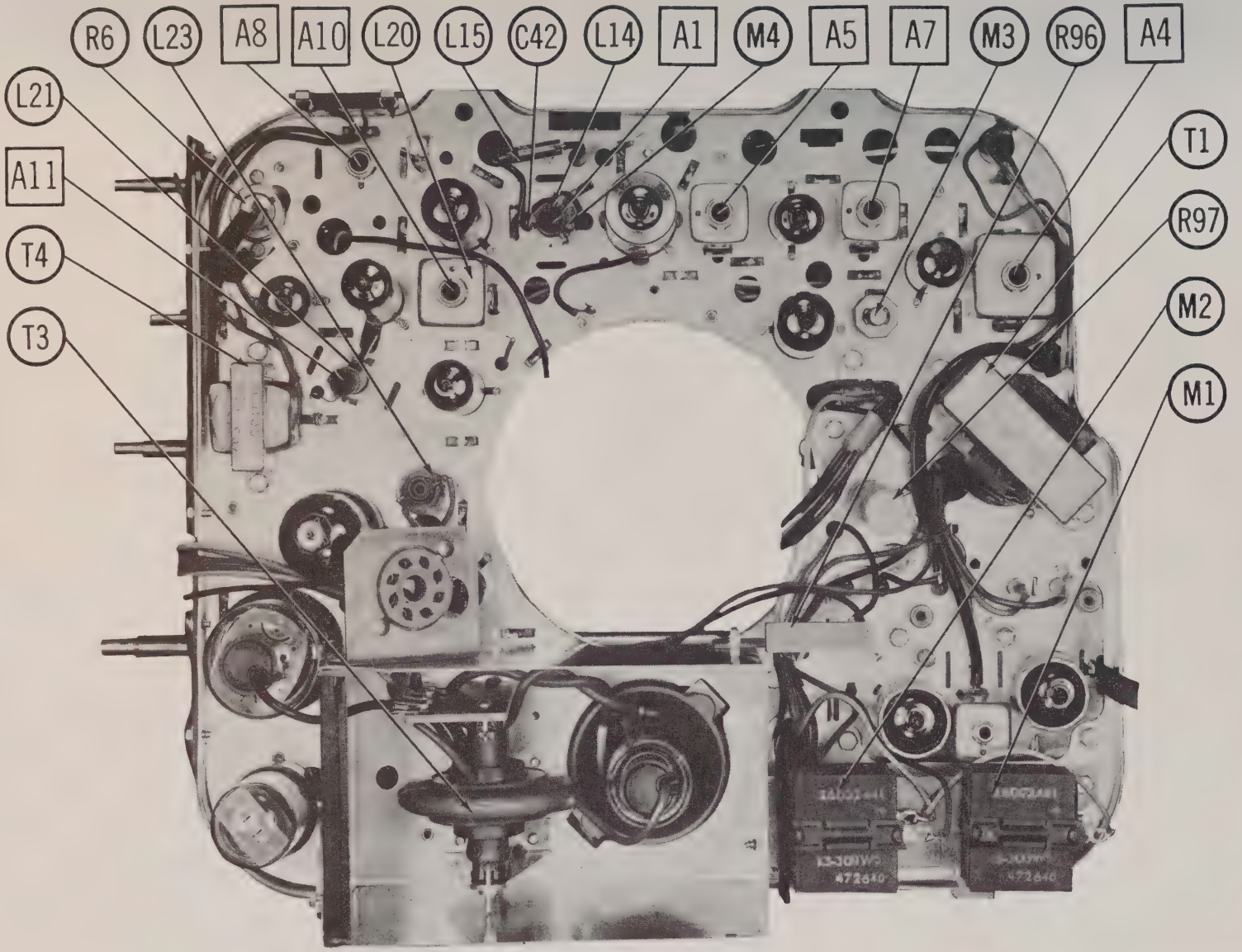
FIG. 1




A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

UHF Tuner Part #89014251

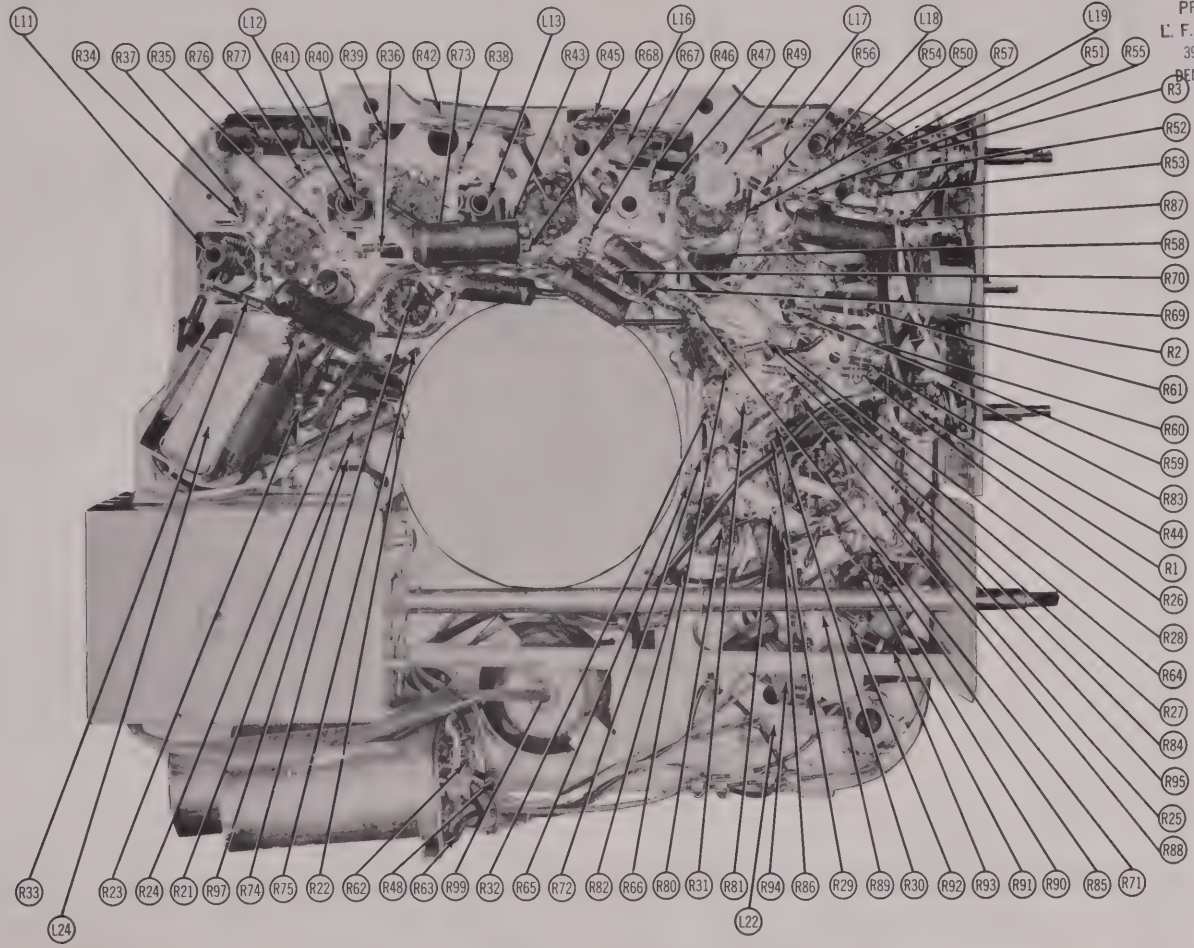
## ALTERNATE TUNER SCHEMATIC




CHASSIS TOP VIEW

DUMONT CHASSIS
RA392, RA393A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

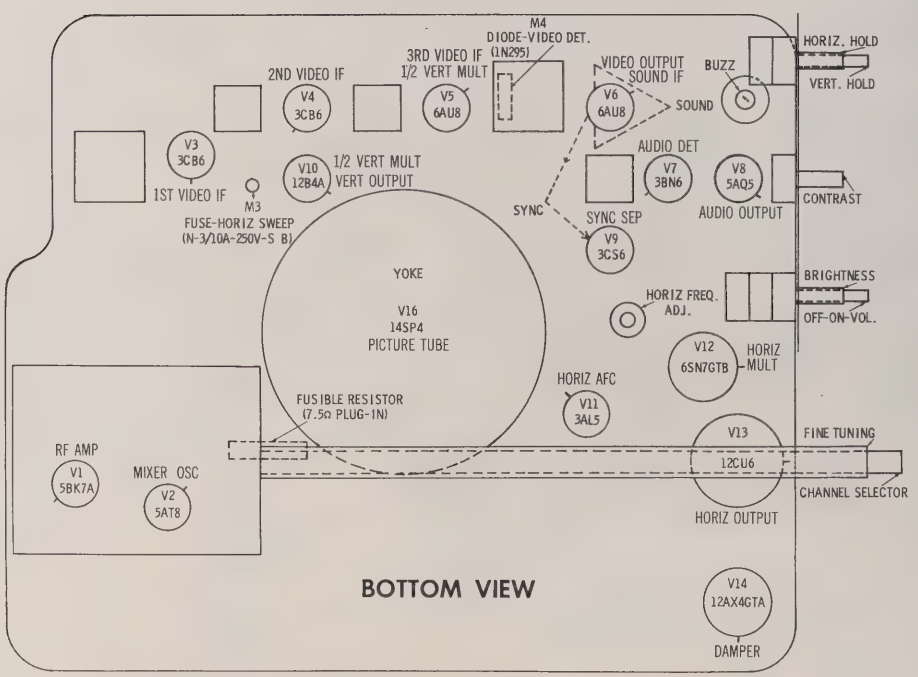



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

# RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 5BK7A | INF | 4Meg | 0Ω | 0Ω | 1Ω | †1700Ω | 300K | INF | 0Ω |
| V2 | 5AT8 | 6800Ω | †11K | 0Ω | 1Ω | 2Ω | †1000Ω | †100K | 0Ω | 100K |
| V3 | 3CB6 | 680K | 56Ω | 8.5Ω | 9.5Ω | ▲ 470Ω | ▲ 470Ω | 0Ω | | |
| V4 | 3CB6 | ▲ 6800Ω | 60K | 9.5Ω | 10.5Ω | †470Ω | †470Ω | 60K | | |
| V5 | 6AU8 | 0Ω | • 550K | • ‡6Meg | 12.5Ω | 10.5Ω | 82Ω | .1Ω | †5400Ω | †5400Ω |
| V6 | 6AU8 | 0Ω | 100K | †55K | 14Ω | 12.5Ω | 68Ω | 1Meg | †47K | †7800Ω |
| V7 | 3BN6 | •370Ω | .4Ω | 15.5Ω | 16.5Ω | †22K | 4Ω | ‡1.5Meg | | |
| V8 | 5AQ5 | 0Ω | 680Ω | 15.5Ω | 14Ω | †1200Ω | †530Ω | 0Ω | | |
| V9 | 3CS6 | 5Meg | 0Ω | 17.5Ω | 16.5Ω | †60K | ♦ 0Ω | 1.2Meg | | |
| V10 | 12B4A | • 1600Ω | 2.2Meg | 17.5Ω | 19Ω | 19Ω | NC | 2.2Meg | NC | †650Ω |
| V11 | 3AL5 | 1Meg | 2Meg | 19Ω | 20Ω | 1Meg | 0Ω | 0Ω | | |
| V12 | 6SN7GTB | • 190K | ‡180K | 1000Ω | 2.4Meg | †15K | 1000Ω | 20Ω | 22Ω | |
| V13 | 12CU6 | NC | 6.5Ω | TP | †8300Ω | 470K | TP | 8.5Ω | 0Ω | TOP CAP †11Ω |
| V14 | 12AX4GTA | NC | NC | ¶ | NC | †65Ω | NC | 6.5Ω | 3.5Ω | |
| V15 | 1B3GT | | PINS | 1 THRU 8 | HAVE | INFINITE | RESISTANCE | | | TOP CAP ‡336Ω |
| V16 | 14SP4 | 2Ω | 100K | PIN 6 †65Ω | PIN 10 †65Ω | PIN 11 230K | PIN 12 3.5Ω | | | |

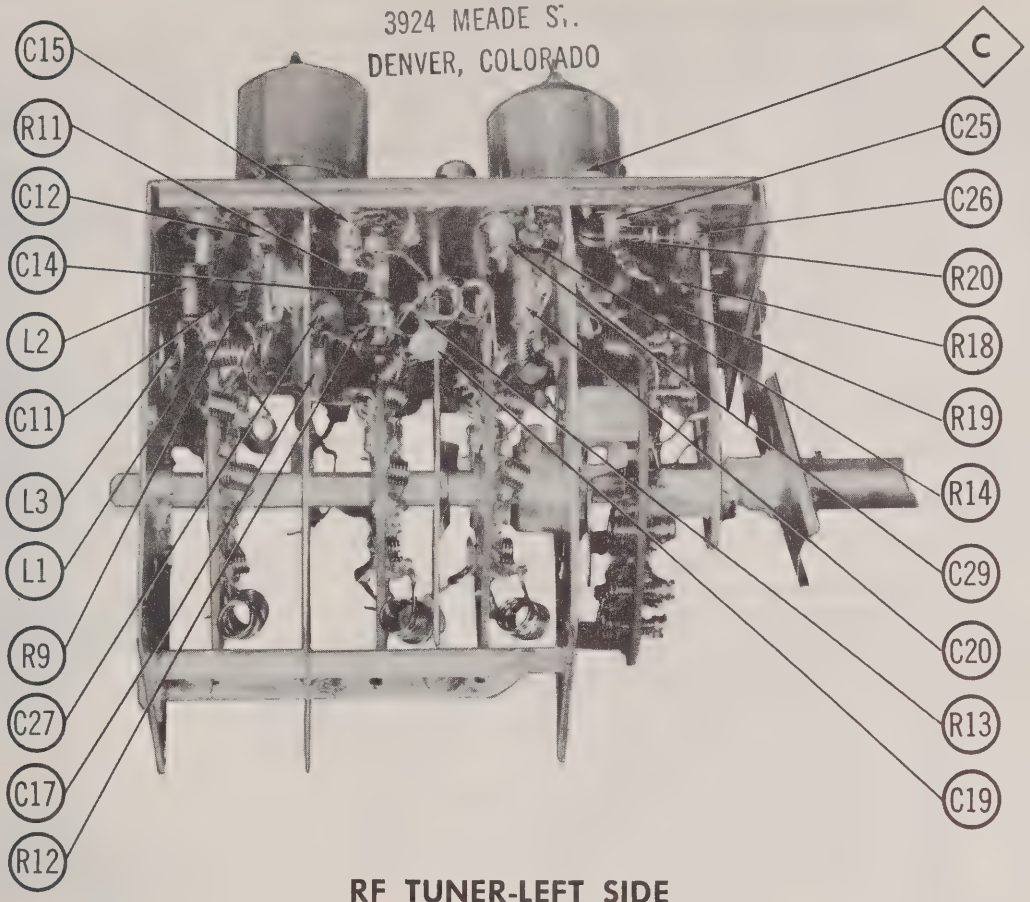
† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V14.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
♦ MEASURED FROM 30V SOURCE.
▲ MEASURED FROM PIN 2 OF V4.
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION
TP TIE POINT



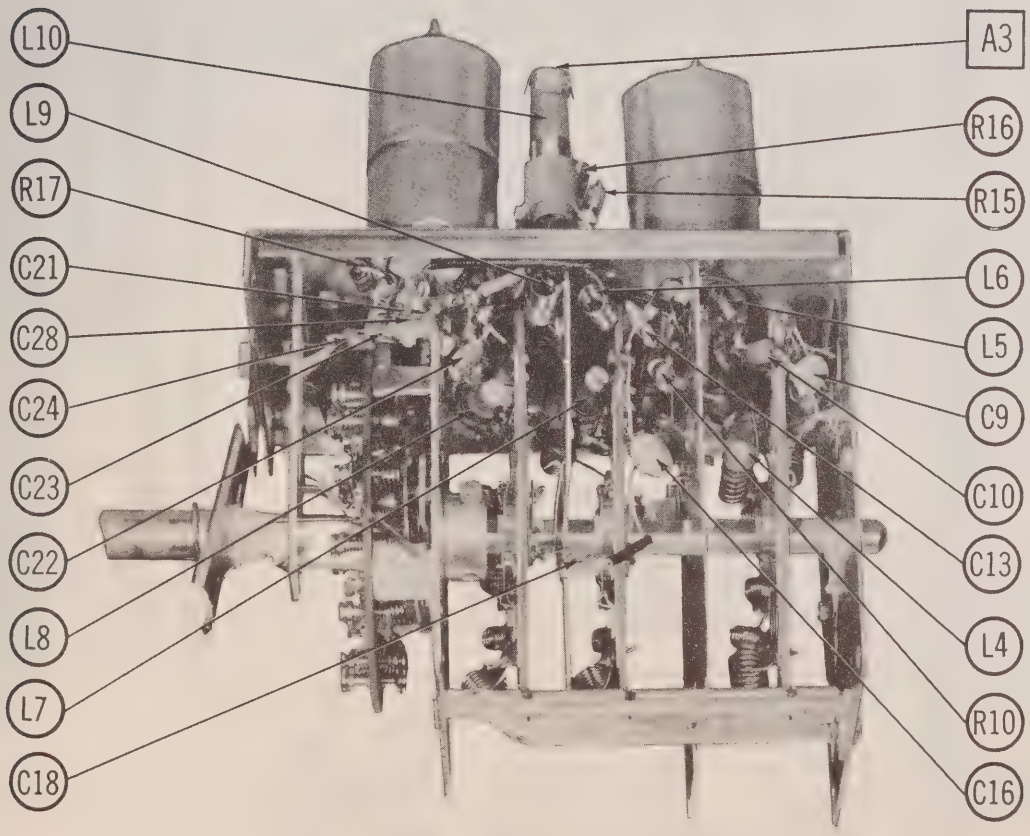

# TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO






RF TUNER-LEFT SIDE




RF TUNER-RIGHT SIDE

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | RF Amplifier | 5BK7A | |
| V2 | Mixer -Oscillator | 5AT8 | |
| V3 | 1st Video IF Amp | 3CB6 | |
| V4 | 2nd Video IF Amp | 3CB6 | |
| V5 | 3rd Video IF Amp - Vert Mult | 6AU8 | |
| V8 | Video Output-Sound IF Amp | 6AU8 | |
| V7 | Audio Detector | 3BN6 | |
| V8 | Audio Output | 5AQ5 | |
| V9 | Sync Separator | 3CB6 | |
| V10 | Vert Mult -Vert Output | 1284A | |
| V11 | Horiz AFC | 9AL5 | |
| V12 | Horiz Mult | 8SN7GTB | |
| V13 | Horiz Output | 12CU6 | |
| V14 | Damper | 12AX4GTA | |
| V15 | HV Rectifier | 1B3GT | |

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA: DUMONT PART No | GENERAL ELECTRIC PART No | SYLVANIA PART No | NOTES |
|---|---|---|---|---|
| V16 | | | 14SP4 ① | ① Silver screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING: CAP | VOLT | REPLACEMENT DATA: DUMONT PART No | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 140 | 200 | 03127483 | AFH3-36 | XAD286 | W8427 | | | TVL-4803.3 |
| C2A | 40 | 300 | 03250458 | AFH4-113-80 | DO783-4 | | | | |
| B | 40 | 350 | | | | | | | |
| C | 100 | 50 | | | | | | | |
| D | 40 | 475 | | | | | | | |
| C3A | 100 | 300 | 03250459 | AFH3-149-80 | CO894 | FP389.1 | TMT-186 | Q-280 | TVL-3885 |
| B | 80 | 400 | | | | | | | |
| C | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING: CAP | VOLT | REPLACEMENT DATA: DUMONT PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C4 | 12 | | | | TCN-12 | C10Q12U | TC7-12 | | | N750 5% |
| C5 | 18 | | | | TCN-18 | C10Q18U | TC7-18 | | | N750 5% |
| C6 | 18 | | | | TCN-18 | C10Q18U | TC7-18 | | | N750 5% |
| C7 | 18 | | | | TCN-18 | C10Q18U | TC7-18 | | | N750 5% |
| C8 | 18 | | | | TCN-18 | C10Q18U | TC7-18 | | | N750 5% |
| C9 | 8.2 | | 03128830 | NPO-SI 8.2 | | C10V82C | TCO-8.2 | | | NPO |
| C10 | 1.8 | | 03133860 | | | | | | | |
| C11 | 470 | | 03121580 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C12 | 1000 | | 03146042 | EF-001 | MFT-1000 | | | | 503C-DI | |
| C13 | 100 | | 03154317 | NPO-SI 100 | D6-101 | L10T1 | ED-100 | | | 10% |
| C14 | 1-4 | | 03173600 | | 329-4 | | 3115-E | | | |
| C15 | 1000 | | 03146042 | EF-001 | MFT-1000 | | | | 503C-DI | |
| C16 | 39 | | 03160330 | N750-SI 39 | TCN-39 | C10Q39U | TC7-39 | | | N750 5% |
| C17 | 95 | | 03173660 | | | | | | | 5% |
| C18 | 81 | | 03190084 | | TCN-81 | C10Q81U | TC7-81 | | | N750 5% |
| C19 | 27 | | 03190082 | | TCZ-27 | C10Q27C | TCO-27 | | | 5% |
| C20 | 1-4 | | 03173600 | | 329-4 | | 3115-E | | | |
| C21 | 3.3 | | 03153900 | NPO-SI 3.3 | TCZ-3R3 | L10V33 | TCO-3.3 | ZT-5533 | 5TCCB-V33 | 10% |
| C22 | 470 | | 03121580 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C23 | 10 | | 03129870 | | TCL-10 | | | | | N1500 |
| C24 | 27 | | 03190083 | | | | | | | N150 5% |
| C25 | 1000 | | 03146042 | EF-001 | MFT-1000 | | | | 503C-DI | |
| C26 | 1000 | | 03146042 | EF-001 | MFT-1000 | | | | 503C-DI | |
| C27 | 1000 | | 03164319 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C28A | 1000 | | 03173781 | BPD-2X001 | DD2-102 | BYC5DDI | ED2-001 | DCD521 | 5HK-2DI | |
| B | 1000 | | | | | | | | | |
| C29 | 1000 | | 03146043 | EF-001 | MFT-1000 | | | | 503C-DI | |
| C30 | 470 | | | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C31 | 4.5 | | | | | | | | | |
| C32 | 30 | | | | TCZ-30 | L10Q3 | ED-30 | UC-548 | 5GA-Q3 | |
| C33 | 8 | | 03154070 | | | L10V8 | | | | 5% |
| C34 | 1000 | | 03153700 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C35 | .1 | 200 | 03140380 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C36 | 330 | | 03173840 | 1469-00033 | D6-331 | L10T33 | ED-330 | | MS-333 | 10% |
| C37 | 1000 | | 03153700 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C38 | 470 | | 03173860 | 1464-00047 | D6-471 | L10T47 | ED-470 | | MS-347 | 10% |
| C39 | 1000 | | 03153700 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C40 | 1000 | | 03174100 | BPD-001 | DD-102 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C41 | 330 | | 03173840 | 1469-00033 | D6-331 | L10T33 | ED-330 | | MS-333 | 10% |
| C42 | 1.0 | | | NPO-SI 1.0 | TCZ-1 | | TCO-1 | | | |
| C43 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 2TM-S47 | |
| C44 | 2200 | | 03173940 | 1464-00032 | | 1R5D32 | | | MS-332 | 5% |
| C45 | 1000 | | 03153700 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C46 | 47 | | 03167470 | NPO-SI 47 | TCZ-47 | C10Q47C | TCO-47 | | 5TCC-Q47 | NPO 5% |
| C47 | .1 | 200 | 03140380 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | ① |
| C48 | 3.3 | | 03153900 | NPO-SI 3.3 | TCZ-3R3 | L10V33 | TCO-3.3 | ZT-5533 | 5TCCB-V33 | 10% |
| C49 | 47 | | 03187470 | BPD-000047 | D6-470 | L10Q47 | ED-47 | UC-5447 | 5GA-Q47 | |
| C50 | 2.4 | | 03153800 | | | | | | | 5% |
| C51 | 7.5 | | 03153650 | | | | | | | 5% |
| C52 | 1000 | | 03153700 | BPD-001 | DD-103 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C53 | 10 | | 03154080 | NPO-SI 10 | TCZ-10 | L10Q | TCO-10 | ZT-541 | 5TCC-Q4 | 5% |
| C54 | 470 | | 03152040 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C55 | 10000 | | 03015920 | BPD-01 | DD-103 | BYA6DI | ED-01 | DC521 | 5HK-DI | |
| C56 | 2200 | | 03153820 | BPD-0022 | D6-222 | BYA10D22 | ED-0022 | UC-5222 | 5GA-D22 | |
| C57 | .1 | 200 | 03140380 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C58 | .1 | 200 | 03140380 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C59 | .1 | 200 | 03140380 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C60 | 470 | | 03152040 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C61 | .0033 | 400 | 03141030 | BPD-0033 | D6-322 | CUB6D33 | GP-3300 | GEM-6333 | 6TM-D33 | |
| C62 | .01 | 200 | 03140000 | | | | | | | 10% |
| C63 | .033 | 400 | 03140660 | | | | | | | 10% |
| C64 | .1 | 400 | 03141120 | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C65 | .0047 | 600 | 03141380 | | | | | | | 10% |
| C66 | .015 | 400 | 03141070 | BPD-015 | DD6-153 | CUB6S15 | ED-015 | GEM-6215 | 6TM-S15 | ③ |
| C67 | .047 | 200 | 03140340 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C68 | 68 | | 03173500 | NPO-SI 68 | D6-680 | L10Q68 | ED-68 | | MS-468 | 10% |
| C69 | 75 | | 03172510 | | | | | | | 10% N470 |
| C70 | .0047 | 400 | 03140580 | 1464-0047 | | 1R5D47 | | | MS-347 | 10% |
| C71 | .0068 | 400 | 03140600 | | | | | | MS-368 | 10% |
| C72 | .0047 | 400 | 03140580 | 1464-0047 | | 1R5D47 | | | MS-347 | 10% |
| C73 | .1 | 200 | 03140120 | P288N-1 | | | | GRM-201 | MS-333 | 10% |
| C74 | .0033 | 400 | 03139688 | 1464-0033 | | 1R5D33 | | | MS-333 | 10% |
| C75 | 100 | | 03183610 | N750-SI 100 | TCN-100 | C10TU | TCT-100 | NT-531 | 5TCU-T1 | 10% N750 |
| C76 | 330 | | 03030490 | 1469-00033 | D6-331 | 5R5T33 | ED-330 | | MS-333 | 10% |
| C77 | 686 | | 03177060 | 1464-00068 | D6-681 | 5R5T68 | ED-680 | | MS-368 | 10% |
| C78 | 220 | | 03177000 | 1469-00022 | D6-221 | 22R5T22 | ED-220 | | MS-322 | 10% |
| C79 | .047 | 400 | 03141100 | BPD-05 | | CUB4S47 | | GEM-4147 | 4TM-S47 | |

## CAPACITORS (cont)

| ITEM No | RATING: CAP | VOLT | REPLACEMENT DATA: DUMONT PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C80 | 170 | 4000 | 03189618 | | | | | | | 10% N1500 ③ |
| C81 | 056 | 400 | 03140710 | | | | | | | 10% |
| C82 | 91 | 2000 | 03189617 | | | | | | | 5% |
| C83 | 10000 | | | BPD-01 | DD-103 | BYA5S1 | ED-01 | DC511 | 5HK-S1 | |
| C84 | 10000 | | | BPD-01 | DD-103 | BYA5S1 | ED-01 | DC511 | 5HK-S1 | |
| C85 | 1000 | | 03153700 | BPD-001 | DD-102 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C86 | 1000 | | 03153700 | BPD-001 | DD-102 | BYA5DI | ED-1000 | DC521 | 5HK-DI | |
| C87 | 10000 | 1600 | 03190241 | | | | | | BL-S10 | |
| C88 | 10000 | 1600 | 03190241 | | | | | | BL-S10 | |

⚠ In some chassis this capacitor is .22MFD, 20%, 200V (Part #03190442).
② In some chassis this capacitor is .1MFD, 20%, 400V (Part #03190441).
③ In some chassis this capacitor is 160MMF, 10%, 4000V (Part #03189618).

## CONTROLS

| ITEM No. | RATING: RESISTANCE | WATTS | REPLACEMENT DATA: DUMONT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | ½ | 01070283 | F1-40 | | | UX1495-S | Brightness |
| B | 1Meg | ½ | | R2-52 | | ◇QJ-1062 | Not Req. | Volume |
| C | Switch | | | KS-1 | | | Not Req. | |
| R2A | 7000Ω | 2 | 01070002 | WW-753 | A43-7500 | WPK7500 | R7500L | Contrast - Wire wound |
| B | Shaft | | | Not Req. | FS-3 | Not Req. | DS-36 | |
| R3A | 50K | ½ | 01072282 | F1-29 | | ◇ | UX982 | Horiz. Hold |
| B | 750K | ½ | | R2-51 | | | Not Req. | Vert. Hold |
| R4A | 3900Ω | 1 | 01070281 | AB-9 | A47-4000S | B11-114 | PTA362L | Vert. Lin. |
| B | Shaft | | | AK-1 | FKS-½ | TM2-K11 | Not Req. | |
| R5A | 7.5Meg | ½ | 01070282 | †AB-89 | †A47-7.5Meg -S | †B11-143 | †PTA56L | Vert. Size with 1Meg stop |
| B | Shaft | | | AK-1 | FKS-½ | TM2-K11 | Not Req. | |
| R6 | 750Ω | 2 | 01070107 | | 39-800 | | FL-750 | Buzz - Wire wound |

† Use a 1Meg resistor in series with the right hand terminal.
◇ Concentrikit Equivalent K-2 Kit, Base Elements & Shafts B11-133, P1-028 (Panel); B13-137, R1-111 (Rear); T6-1 (Switch)
* Concentrikit Equivalent K-2 Kit, Base Elements & Shafts B11-123, P1-028 (Panel); B11-136, R1-111 (Rear)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING: OHMS | WATT | REPLACEMENT DATA: DUMONT PART No. | IRC PART No. | NOTES |
|---|---|---|---|---|---|
| R7 | 470K | | 02252580 | BTS-470K | |
| R8 | 470K | | 02252580 | BTS-470K | |
| R9 | 22K | | 02251930 | BTS-22K | |
| R10 | 620K 5% | | 02251150 | BTS-620K 5% | |
| R11 | 620K 5% | | 02251150 | BTS-620K 5% | |
| R12 | 3900Ω | | 02251840 | BTS-3900 | |
| R13 | 2700Ω | | 02251820 | BTS-2700 | |
| R14 | 100K | | 02252010 | BTS-100K | |
| R15 | 100K | | 02252010 | BTS-100K | |
| R16 | 22K | | 02251930 | BTS-22K | |
| R17 | 6800Ω | | 02251870 | BTS-6800 | |
| R18 | 100Ω | | 02032290 | BTS-100 | |
| R19 | 5600Ω | | 02031860 | BTS-5600 | |
| R20 | 100K | | 02032010 | BTS-100K | |
| R21 | 56000Ω | 4 | 02300730 | | |
| R22 | 27K | 2 | 02257940 | BTB-27K | |
| R23 | 270Ω | | 02251700 | BTS-270 | |
| R24 | 2.2Meg | | 02252620 | | |
| R25 | 820K | | 02252120 | | |
| R26 | 270K | | 02252060 | | |
| R27 | 2.2Meg 5% | | 02252280 | | |
| R28 | 2.2Meg | | 02252170 | | |
| R29 | 5.6Meg | | 02252220 | BTS-5.6Meg | |
| R30 | 6.2Meg 5% | | 02254420 | BTS-8.2Meg 5% | |
| R31 | 220K | | 02252050 | BTS-220K | |
| R32 | 680K | | 02252590 | BTS-680K | |
| R33 | 1000Ω | | 02252420 | BTS-1000 | |
| R34 | 10K | | 02251690 | | |
| R35 | 12K | | 02251990 | | |
| R36 | 470Ω | | 02252400 | BTS-470 | |
| R37 | 56Ω | | 02251620 | BTS-56 | |
| R38 | 470Ω | | 02252400 | | |
| R39 | 120K | | 02252020 | | |
| R40 | 5600Ω | | 02252470 | BTS-5600 | |
| R41 | 120K | | 02252020 | BTS-120K | |
| R42 | 5400Ω | 4 | 02245020 | | |
| R43 | 82Ω | | 02251640 | BTS-82 | |
| R44 | 1Meg | | 02252130 | BTS-1Meg | |
| R45 | 22K | | 02251930 | BTS-22K | |
| R46 | 4700Ω | | 02251850 | BTS-4700 | |
| R47 | 1Meg | | 02252600 | BTS-1Meg | |
| R48 | 47K | 1 | 02254970 | BTA-47K | |
| R49 | 68Ω | | 02251630 | BTS-68 | |
| R50 | 18K | | 02251920 | BTS-18K | |
| R51 | 22K | | 02251930 | BTS-22K | |
| R52 | 33K | | 02251950 | BTS-33K | |

| ITEM No. | RATING: OHMS | WATT | REPLACEMENT DATA: DUMONT PART No. | IRC PART No. | NOTES |
|---|---|---|---|---|---|
| R53 | 2700Ω | 1 | 02254820 | BTA-2700 | |
| R54 | 220K | | 02252560 | BTS-220K | |
| R55 | 220K | | 02252560 | BTS-220K | |
| R56 | 100K | | 02252540 | BTS-100K | |
| R57 | 1000Ω | | 02252420 | BTS-1000 | |
| R58 | 33K | | | BTS-33K | |
| R59 | 5800Ω | | 02252410 | BTS-5800 | |
| R60 | 1.5Meg | | 02252151 | BTS-1.5Meg | |
| R61 | 22K | 2 | 02258500 | BTB-22K | |
| R62 | 470Ω | | 02251730 | BTS-470 | |
| R63 | 6800Ω | 1 | 02254750 | BTA-6800 | |
| R64 | 1.5Meg | | 02252810 | BTS-1.5Meg | |
| R65 | 100K | | 02252010 | BTS-100K | |
| R66 | 390K | | 02252060 | BTS-390K | |
| R67 | 330K | | 02253070 | BTS-330K | |
| R68 | 2.2Meg 5% | | 02251280 | BTS-2.2Meg 5% | Note 1 |
| R69 | 100K | | 02252010 | BTS-100K | |
| R70 | 47K | | 02251970 | BTS-47K | |
| R71 | 27K | | 02251940 | BTS-27K | |
| R72 | 68K | | 02251990 | BTS-68K | |
| R73 | 2.2Meg | | 02252620 | BTS-2.2Meg | |
| R74 | 220Ω | | 02252580 | BTS-220 | |
| R75 | 100K | | 02252540 | BTS-100K | Note 2 |
| R76 | 1200Ω | 1 | 02254780 | BTA-1200 | |
| R77 | 68Ω | | 02252350 | BTS-68 | |
| R78 | 560Ω | | 02251740 | | |
| R79 | 560Ω | | 02251740 | | |
| R80 | 1Meg | | 02252130 | | |
| R81 | 390K | | 02252060 | | |
| R82 | 1Meg | | 02252130 | | |
| R83 | 47K | | 02251970 | | |
| R84 | 15K | 1 | 02254910 | | |
| R85 | 180K | 1 | 02255040 | | |
| R86 | 1000Ω | | 02251770 | BTS-1000 | |
| R87 | 330K | | 02252070 | | |
| R88 | 180K | | 02252040 | | |
| R89 | 12K | | 02251800 | BTS-12K | |
| R90 | 470K | | 02252580 | BTS-470K | |
| R91 | 100Ω | | 02252360 | BTS-100 | |
| R92 | 100Ω | | 02252360 | BTS-100 | |
| R93 | 6200Ω | 3 | 02257880 | BTB-6200 | |
| R94 | 27K | 1 | 02254940 | BTA-27K | |
| R95 | 150K | | 02252550 | BTS-150K | |
| R96 | 7.5Ω | | 02310001 | FR7.5 | |
| R97 | 50Ω | | 02304200 | 3½DA-50 | |
| R98 | 470K | | 02032580 | BTS-470K | |
| R99 | 4700Ω | | 02252460 | BTS-4700 | Note 1 |

Note 1. Not used in some versions.
Note 2. Some versions may use a 12K (Part #02251900) in this application.
Note 3. Chassis RA393 uses part #02308150 in this application.

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No | USE | REPLACEMENT DATA: DUMONT PART No | Halldorson PART No | Merit PART No | RCA TYPE No | Ram PART No | Stancor PART No | Thordarson PART No | Triad PART No |
|---|---|---|---|---|---|---|---|---|---|
| T1 | Vert. Output | 20010332 | Z1900 ① | A-2823 ② | | V316 ④ | A-8146 | 26873 ② | A-118X ② |
| T2A | Yoke -Horiz.(12.7MH) | 21015532-1 | DF606 | MDF-91 | 2571N | Y90F12/47 | DY-13A | Y-14 | Y-40 ⑥ |
| B | 90° -Vert.(44.5MH) | [redacted] | ⑤ ⑦ ② | ⑤ ② | ⑤/⑦ | ⑤ ⑦ | ⑤ ② | ⑤ ② | NW5 ② |
| | Alternate Yoke | 89014132 | | | | | | | |
| M7 | Rear Cover And Centering Device | [redacted] | | | | | | | |
| T3 | Horiz. Output | 20010873 | FB419 ②* | HVO-36 ②* | 2357T ②* | X094 ②* | HO-258 ②* | FLY-16 ②* | D-50 ②* |

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Connect as autoformer.
④ Cut and tape green lead.
⑤ Connect same as original.
⑥ Use original horizontal damping network, if necessary. Use original rear cover and centering device.
⑦ Connect horizontal damping capacitor across #3 and #7.
⑧ Cut and form a piece of .010 fish paper inside yoke itself and support with an acetate cement to provide an insulation between the width sleeve and the yoke proper.

### *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

| | ORIGINAL TERMINAL CONNECTIONS | Halldorson Replacement Connections | Merit Replacement Connections | RCA Replacement Connections | Ram Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|---|---|---|---|
| | 4 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| | 3 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE: PRI. | SEC. | REPLACEMENT DATA: DUMONT PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T4 | 11K | 3-4Ω | 20010572 | Z1117 ① | A-2798 | A-3879 ① | 26S83 | S-11X | ① Drill one new mounting hole. |

## SPEAKER

| ITEM No. | TYPE: SIZE | FIELD | V C IMP. | REPLACEMENT DATA: DUMONT PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 4" | PM | 3-4Ω | 18003794 | 4A07 | |

## COILS (RF-IF)

| ITEM No. | USE | DUMONT PART No. | NOTES |
|---|---|---|---|
| L1 | VHF Ant. Trans. | 20011161 | |
| L2 | UHF Coil | 21014839 | |
| L3 | UHF Coil | 21013724 | |
| L4 | VHF Ant. Coil | 21012799 | |
| L5 | Cathode Choke | 21014806 | |
| L6 | Fil. Choke | 21015603 | |
| L7 | RF Coil | 21012768 | |
| L8 | Mixer Grid Coil | 21012765 | |
| L9 | Fil. Choke | 21014835 | |
| L10 | Mixer Plate Coil | 21014841 | |

| ITEM No. | USE | REPLACEMENT DATA: DUMONT PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No | NOTES |
|---|---|---|---|---|---|---|
| L11 | 1st. Video IF | 20010521 | | | | Includes trap and assy. |
| L12 | 2nd. Video IF | 20010531 | 17-5001 * | TV-126 * | | |
| L13 | 3rd. Video IF | 20010533 | 17-5002 * | TV-126 * | | |
| L14 | 4th. Video IF | 20010551 | | | | |
| L15 | Resonant Choke | 21012453 | | | | 50MC, 29 Microhenries |
| L16 | Shunt Peaking Coil | 21014259 | 19-3500 | TV-186 | 6144 | 540 Microhenries |
| L17 | Resonant Choke | 21012453 | | | | 50MC, 29 Microhenries-Note 1 |
| L18A | 4.5MC Trap | 21014881 | | | TV-130 ▲ | |
| B | 1st. Sound IF | | | | | |
| L19 | Series Peaking Coil | 21014258 | 19-3125 | | 6153 | 130 Microhenries Includes caps and resistors |
| L20 | 2nd. Sound IF | 20010561 | | | | |
| L21 | Quadrature Coil | 21014851 | 20-1006 ▲ | TV-12 | 1490 ▲ | |
| L22 | RF Choke | 21006520 | | | | 4 7 Microhenries, IRC part #CL-1 - Note 1 |

Note 1. Not used in some versions.
* Use adaptor plate
▲ Drill new mounting hole.

## TRANSFORMER (HORIZ. OSC.)

| ITEM No. | DC RES.: PRI. | SEC. | REPLACEMENT DATA: DUMONT PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | RCA TYPE No | Ram PART No | Thordarson PART No | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| L23 | 97Ω | | 21014911 | | TV-185 | | | S-102 | RS-7 * | 25-60 Millihenries |

* Disregard tap and drill new mounting hole.

## FILTER CHOKE

| ITEM No. | RATINGS: TOTAL DIRECT CURRENT | D.C. RESISTANCE | INDUCTANCE (@ CURRENT 1000 ~\) | REPLACEMENT DATA: DUMONT PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No | Triad PART No |
|---|---|---|---|---|---|---|---|---|---|
| L24 | 345A | 68Ω | 1.9 HY. | 21014872 | C5037 ① | C-2974 | C-2325 ① | 28C44 | C-23X |

① Drill one new mounting hole.

DUMONT CHASSIS RA392, RA393A

# PARTS LIST AND DESCRIPTIONS (Continued)

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | DUMONT PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Sync Couplate | | 88001481 | |
| K2 | Vert. Feedback | | 88001482 | |

## RECTIFIERS

| ITEM No. | RATING | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | DUMONT PART No. | FEDERAL PART No. | GENERAL ELECTRIC PART No. | INTERNATIONAL PART No. | MALLORY PART No. | SARKES TARZIAN PART No. | |
| M1 | .255 | 26002441 ① | 1010 ① | 1N1007 ② | MR300 ① | 6S300A ① | 300 ① | |
| M2 | .255 | 26002441 ① | 1010 ① | 1N1007 ② | MR300 ① | 6S300A ① | 300 ① | |

① Selenium type. ② Germanium type.

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | DUMONT PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M3 | *N 3/10 | .3A | 11006050 | 11006400 | 333.300 (N 3/10 S/B) | 346008 | N 3/10 | HN 0 to 3/10 |

* Some versions may use a N 2/10 S/B fuse in this application.

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | DUMONT PART No. | CBS PART No. | SYLVANIA PART No. | |
| M4 | 1N295 | 26001891 | 1N60 | 1N34A | Video Det. (Pigtail) |

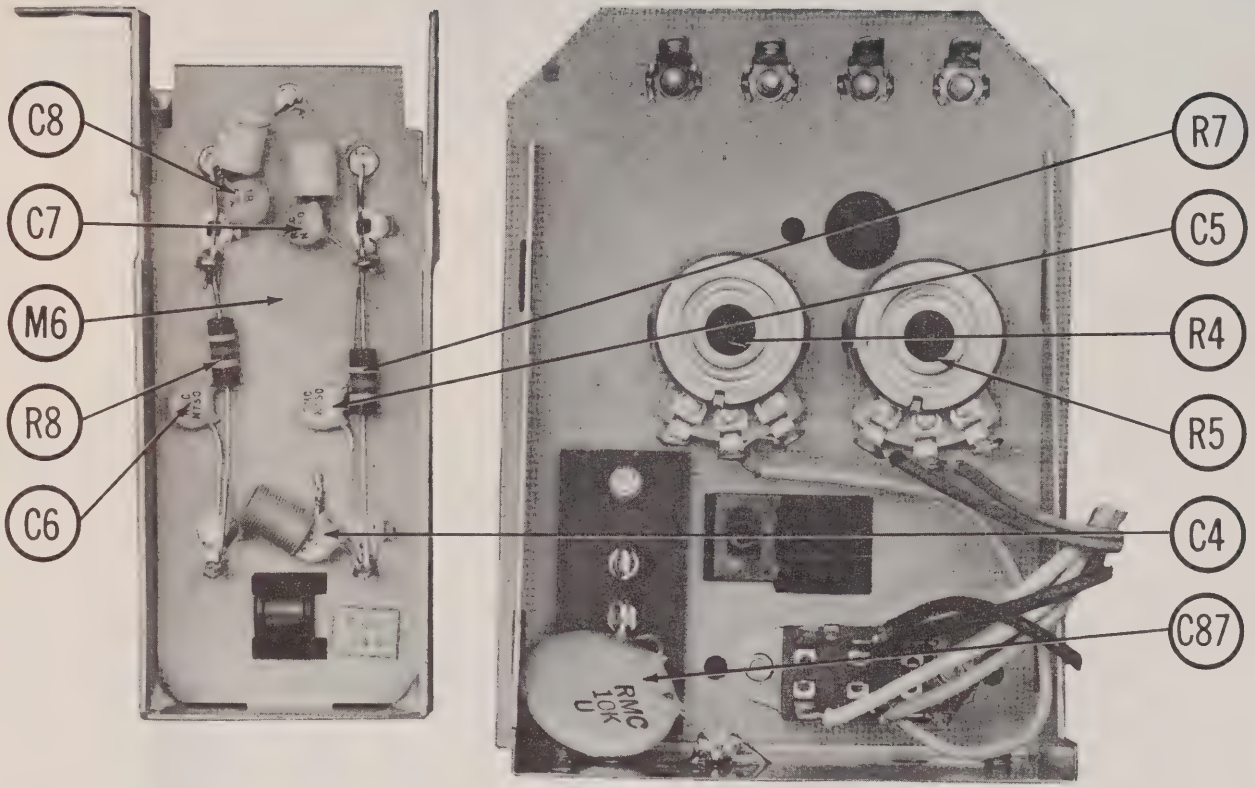
## MISCELLANEOUS

| ITEM No. | PART NAME | DUMONT PART No. | NOTES |
|---|---|---|---|
| M5 | Tuner | 89014065 | VHF |
| | Tuner | 89014251 | UHF - Ch. RA-393 |
| M6 | Antenna Network | 88001971 | |
| M7 | Width Device | | |
| M8 | Centering Device | 29000952 | Includes yoke rear cover |
| M9 | Ion Trap | 29000833 | |

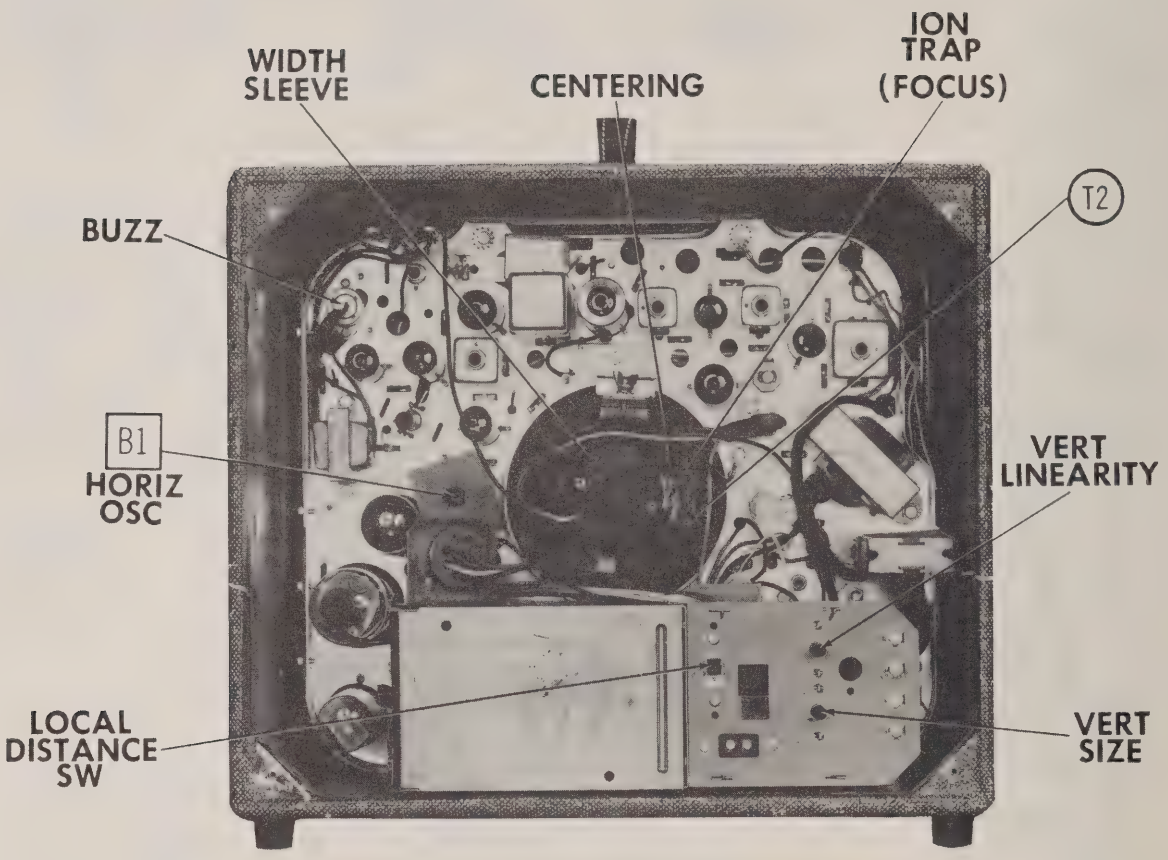
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 45006737 | Tinted |
| Safety Glass | 45006739 | Clear |
| Mask | 64012481 | Black |
| Mask | 64012482 | Gold |
| Knob | 45007831 | Channel Selector - Ch. RA-392 |
| Knob | 45007841 | Channel Selector - Ch. RA-393 |
| Knob | 45007921 | Fine Tuning - Ch. RA-392 |
| Knob | 45004445 | Fine Tuning - Ch. RA-393 |
| Knob | 45007811 | On-off-volume, Vert. Hold |
| Knob | 45007821 | Brightness, Horiz. Hold |
| Knob | 45007544 | Contrast |
| Dial | 45005013 | UHF - Ch. RA393 |
| Handle | 64012501 | Assembly |




ANTENNA INPUT ASSEMBLY




## CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control at the center of its range.

Adjust the horizontal frequency slug (B1) to the center of its effective synchronizing range, then momentarily switch off channel and back again.

The picture should pull into sync again. If not, retouch B1.

PHOTOFACT* Folder

*TRADE MARK

# FIRESTONE MODELS 13-G-225, 13-G-226 (Codes 334-6-A63/A, 334-6-N63/A)

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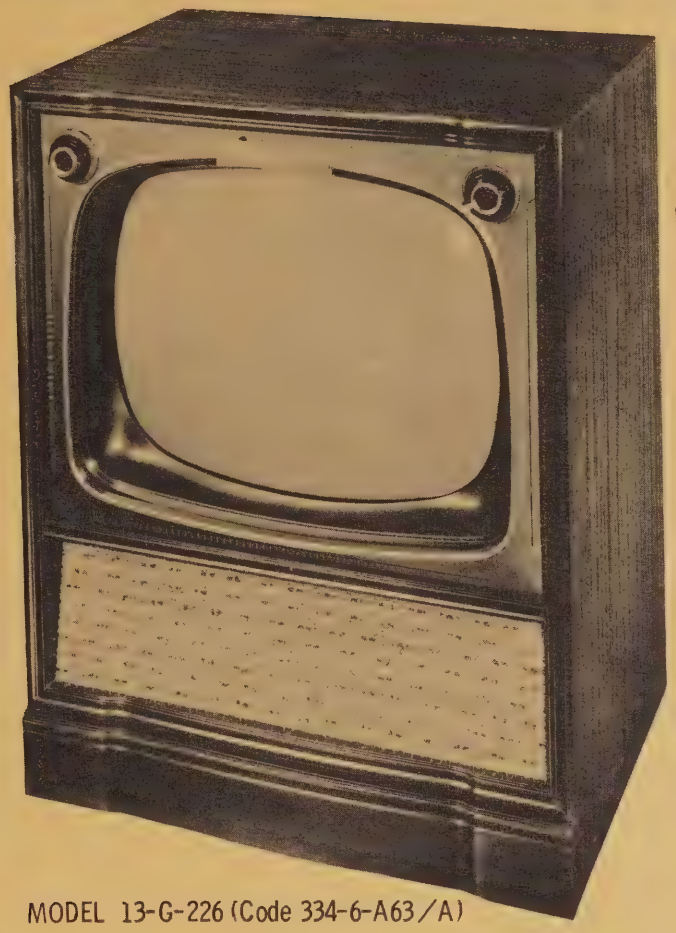
The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 13-G-226 (Code 334-6-A63/A)

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3924 MEADE ST.
DENVER, COLORADO

FIRESTONE MODELS 13-G-225, 13-G-226
(Codes 334-6-A63/A, 334-6-N63/A)

| | |
|---|---|
| TRADE NAME | Firestone Models 13-G-225, 13-G-226 (Codes 334-6-A63/A, -N63/A) |
| SUPPLIER | Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio |
| TYPE SET | Television Receiver |
| TUBES | Twenty |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle RATING 190 Watts, 1.5 Amp. @ 117 Volts AC |
| TUNING RANGE | Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) |

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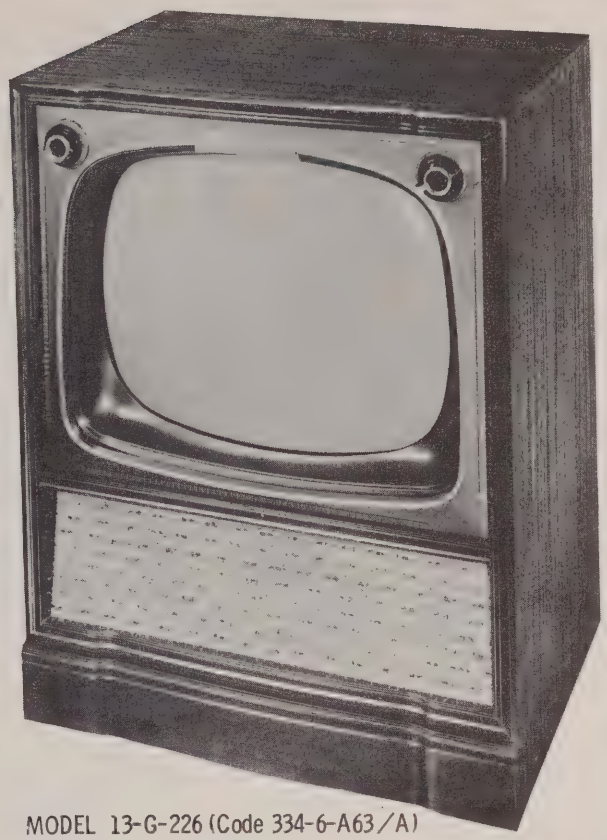
# DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 wood screws and the rear cover.
2. Loosen 2 wood screws and remove the antenna terminal board.
3. Remove 1 metal screw holding the left chassis brace .
4. Remove 2 metal screws holding the top chassis braces.
5. Remove 2 metal screws holding the bottom chassis braces.
6. Remove 2 speaker leads.
7. Remove the chassis from the front.



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# SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjusted for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the name plate by prying out. Remove 2 metal screws and safety glass clamp. Remove the safety glass.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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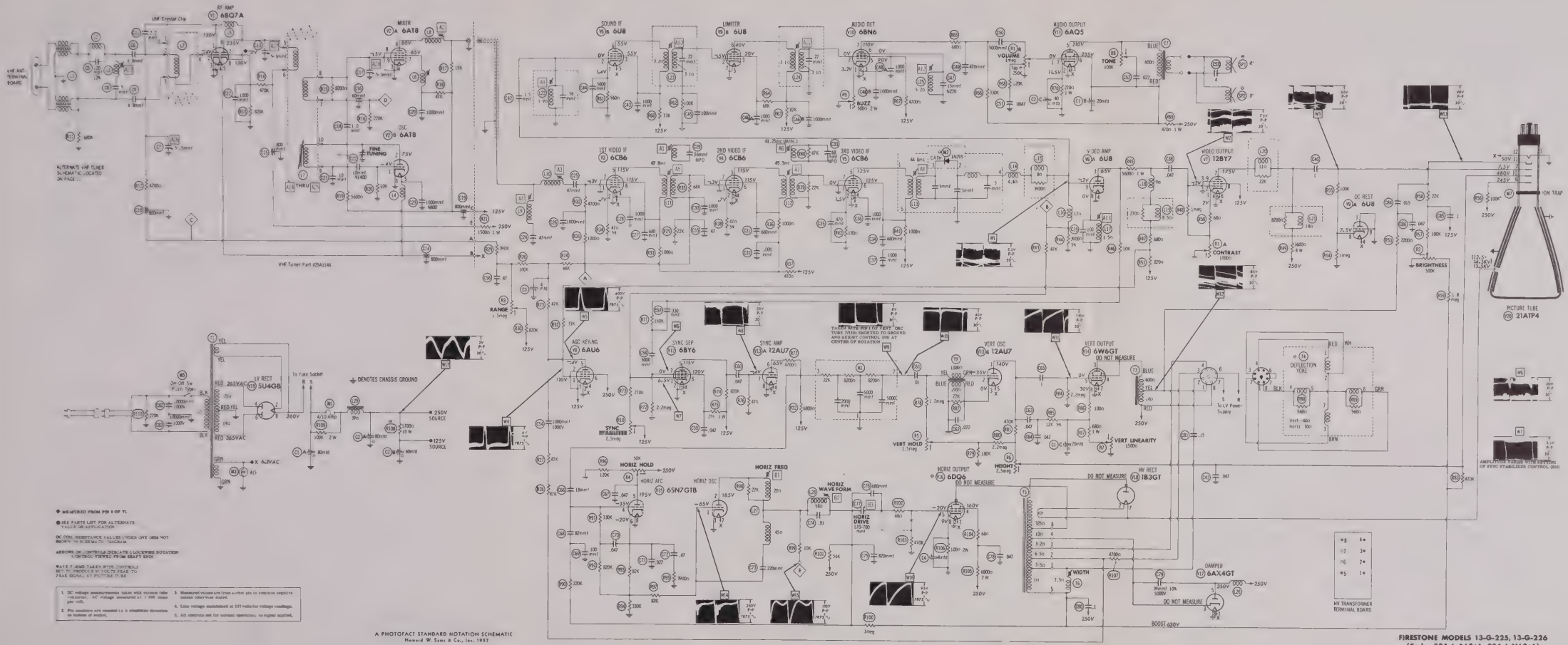


◆ MEASURED FROM PIN 1 OF V1.

● SEE PARTS LIST FOR ALTERNATE VALUES OR APPLICATION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN IN SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END).

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE SIX VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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**FIRESTONE MODELS 13-G-225, 13-G-226**
**(Codes 334-6-A63/A, 334-6-N63/A)**

# TUBE PLACEMENT CHART

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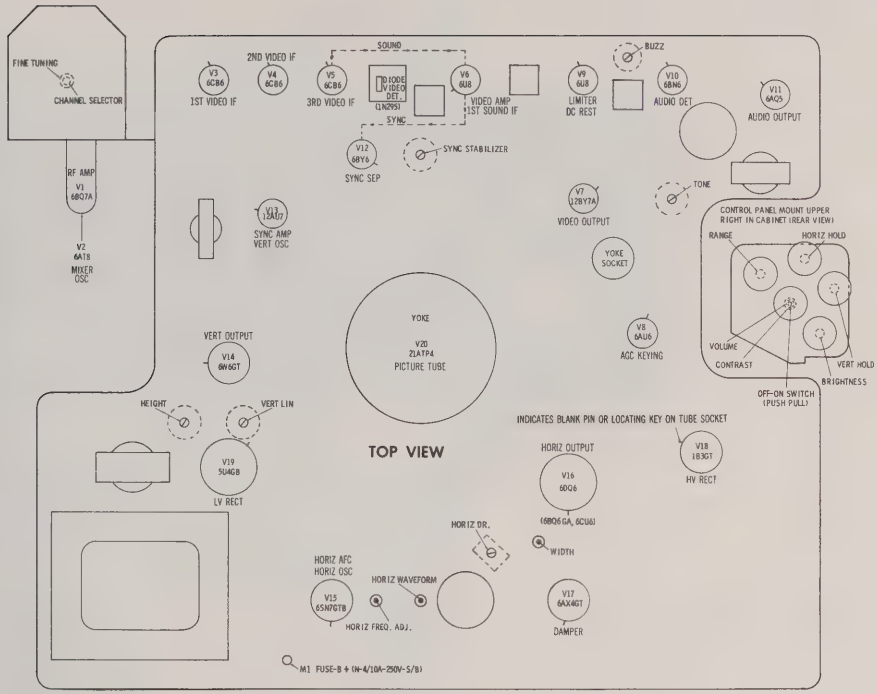



# TUBE FAILURE CHECK CHART

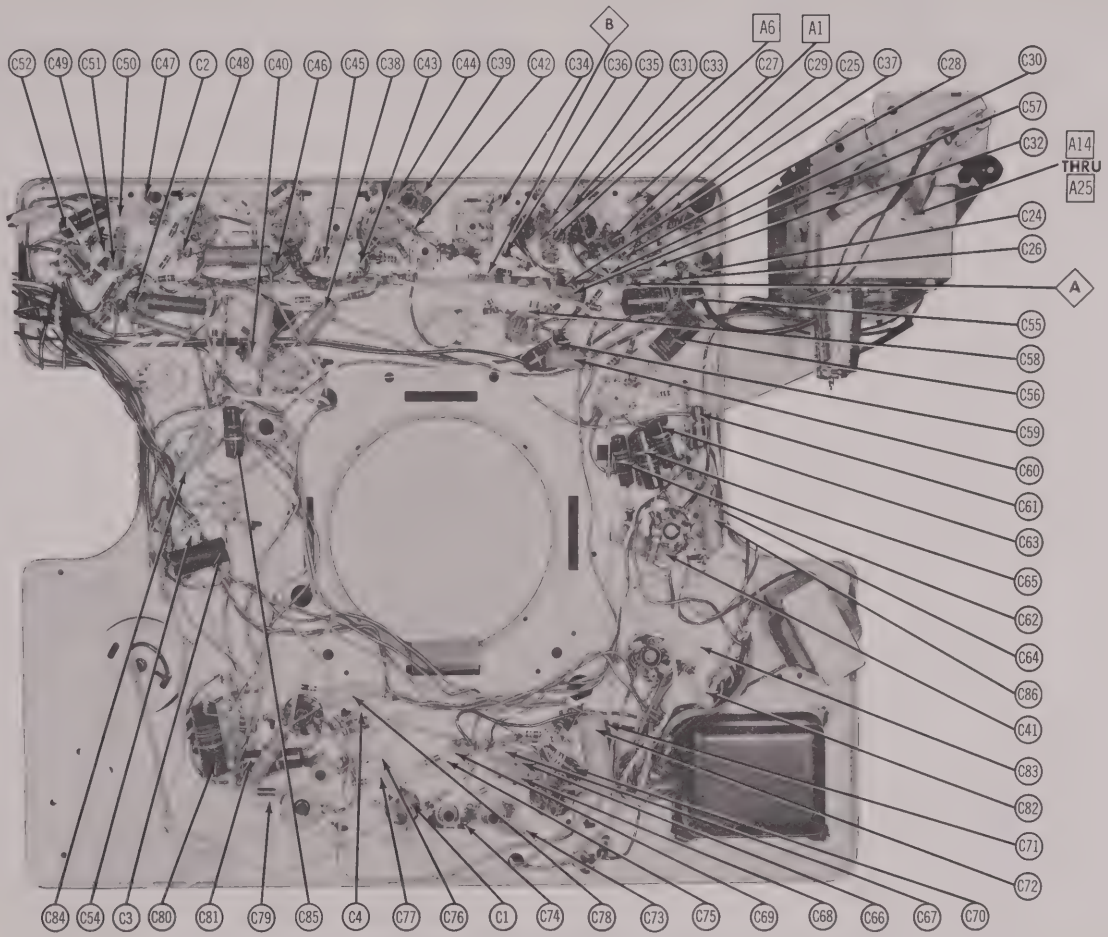
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M1), V19**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M2)**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V7, V9, V20**
Has pic, no sound - **V6, V9, V10, V11**
Overloaded picture - **V8**

SYNC FAILURE
No vert. sync - **V12, V13**
No horiz. sync - **V12, V13, V15**
No vert. or horiz. sync - **V12, V13**

SWEEP FAILURE
No raster, has sound - **V15, V16, V17, V18, V20**
No vertical deflection - **V13, V14**
Poor vert. linearity or foldover - **V13, V14**
Poor horiz. linearity or foldover - **V15, V16, V17**
Narrow picture - **V15, V16, V17, V19**
Vert. off freq. - **V13**
Horiz. off freq. - **V15**




CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volts bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | Direct | High side to ungrounded tube shield floating over mixer-oscillator tube (V2). Low side to chassis. | 44.0MC (10MC Swp) | 47.25MC | Any non-interfering channel | Vert. Amp. thru detector probe (Fig. 1) to pin 5 (grid) of V3 (6CB6). Low side to chassis. | A1 | Adjust to place 47.25MC marker in trap notch as in Fig. 2. |
| 2. | | " | " | 41.25MC | " | " | A2, A3 | Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A2 and A3 control the shape of the top. A4 controls position of the 41.25MC marker. Correct adjustment of A4 is imperative for proper sound rejection. |
| 3. | " | " | Not used | 42.8MC (Unmod) | " | USE VTVM DC probe to point Ⓑ Common to chassis. | A5 | Increase bias at point Ⓐ to -4.5 volts. Adjust A5 for maximum deflection. |
| 4. | " | " | " | 41.25MC | " | " | A6 | Adjust for MINIMUM deflection. |
| 5. | " | " | " | 45.3MC | " | " | A7 | Adjust for maximum deflection. |
| 6. | " | " | " | 44.0MC | " | " | A8 | " |
| 7. | " | " | 44.0MC (10MC Swp) | 41.25MC<br>42.4MC<br>42.8MC<br>44.0MC<br>44.5MC<br>45.3MC<br>45.75MC<br>47.25MC | " | Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. | | Check for response similar to Fig. 3 with markers as indicated. Retouch, if necessary, A5 thru A8 for desired response. DO NOT readjust A1 thru A4. |

4.5MC TRAP ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 8. | .005MFD | High side to pin 9 (grid) of 6U8 (V6). Low side to chassis. | 4.5MC (Unmod) | Any non-interfering channel | AC probe to pin 2 (grid) of picture tube. Common to chassis. | A9 | Use 0-10 volts AC scale on VTVM. Adjust for MINIMUM deflection. |

SOUND IF ALIGNMENT

1. Tune in a TV station and reduce the signal strength by use of an attenuator or similar device until a hiss is heard in the sound.
2. Adjust A10, A11, A12, A13 and R9 for maximum undistorted sound and MINIMUM buzz.
3. If the hiss disappears during alignment, reduce the signal strength further.

OSCILLATOR ALIGNMENT

Connect the negative lead of a 4.5 volts bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 9. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC (10MC Swp) | 211.25MC<br>215.75MC | 13 | Vert. Amp. thru 47K to point Ⓑ. Low side to chassis. | A14 | Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50%. |
| | | | 207MC (10MC Swp) | 205.25MC<br>209.75MC | 12 | | A15 | |
| | | | 201MC (10MC Swp) | 199.25MC<br>203.75MC | 11 | | A16 | |
| | | | 195MC (10MC Swp) | 193.25MC<br>197.75MC | 10 | | A17 | |
| | | | 189MC (10MC Swp) | 187.25MC<br>191.75MC | 9 | | A18 | |
| | | | 183MC (10MC Swp) | 181.25MC<br>185.75MC | 8 | | A19 | |
| | | | 177MC (10MC Swp) | 175.25MC<br>179.75MC | 7 | | A20 | |
| | | | 85MC (10MC Swp) | 83.25MC<br>87.75MC | 6 | | A21 | |
| | | | 79MC (10MC Swp) | 77.25MC<br>81.75MC | 5 | | A22 | |
| | | | 69MC (10MC Swp) | 67.25MC<br>71.75MC | 4 | | A23 | |
| | | | 63MC (10MC Swp) | 61.25MC<br>65.75MC | 3 | | A24 | |
| | | | 57MC (10MC Swp) | 55.25MC<br>59.75MC | 2 | | A25 | |

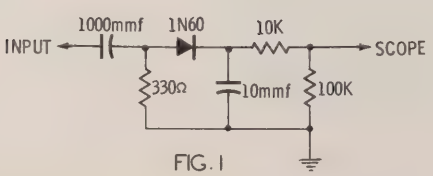


FIG. 1

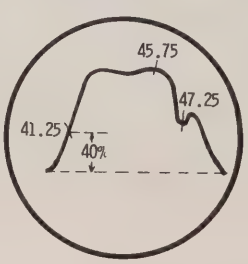


FIG. 2

# ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT FOR TUNER #25A1144

Connect the negative lead of a 3 volt bias supply to point Ⓒ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 10. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 207MC (10MC Swp) | 205.25MC 209.75MC | 12 | Vert. Amp. thru 10K to point Ⓓ. Low side to chassis. | A26, A27, A28 | Adjust for response curve similar to Fig. 5 with markers above 90%. Check for response similar to Fig. 5. If markers fall below 70% on any channel, make compromise adjustments of A26, A27 and A28 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected. |
| | | | 213MC (10MC Swp) | 211.25MC 215.75MC | 13 | | | |
| | | | 201MC (10MC Swp) | 199.25MC 203.75MC | 11 | | | |
| | | | 195MC (10MC Swp) | 193.25MC 197.75MC | 10 | | | |
| | | | 189MC (10MC Swp) | 187.25MC 191.75MC | 9 | | | |
| | | | 183MC (10MC Swp) | 181.25MC 185.75MC | 8 | | | |
| | | | 177MC (10MC Swp) | 175.25MC 179.75MC | 7 | | | |
| | | | 85MC (10MC Swp) | 83.25MC 87.75MC | 6 | | | |
| | | | 79MC (10MC Swp) | 77.25MC 81.75MC | 5 | | | |
| | | | 69MC (10MC Swp) | 67.25MC 71.75MC | 4 | | | |
| | | | 63MC (10MC Swp) | 61.25MC 65.75MC | 3 | | | |
| | | | 57MC (10MC Swp) | 55.25MC 59.75MC | 2 | | | |

RF AND MIXER ALIGNMENT FOR TUNER #25A1147

Connect the negative lead of a 2.5 volt bias supply to point Ⓒ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 11. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 195MC (10MC Swp) | 193.25MC 197.75MC | 10 | Vert. Amp. thru 10K to point Ⓓ. Low side to chassis. | A29, A30 | Adjust A29 and A30 for response similar to Fig. 5 with markers on shoulders of curve. |
| 12. | " | " | " | " | " | Vert. Amp. thru detector to pin 5 (plate) of 6CB6 (V3). Low side to chassis. | A31 | Adjust for MINIMUM amplitude. |
| 13. | " | " | 213MC (10MC Swp) | 211.25MC 215.75MC | 13 | Vert. Amp. thru 10K to point Ⓓ. Low side to chassis. | | Check for response similar to Fig. 5. If markers fall below 70% on any channel, make compromise adjustment of A29 and A30 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected. |
| | | | 207MC (10MC Swp) | 205.25MC 209.75MC | 12 | | | |
| | | | 201MC (10MC Swp) | 199.25MC 203.75MC | 11 | | | |
| | | | 189MC (10MC Swp) | 187.25MC 191.75MC | 9 | | | |
| | | | 183MC (10MC Swp) | 181.25MC 185.75MC | 8 | | | |
| | | | 177MC (10MC Swp) | 175.25MC 179.75MC | 7 | | | |
| | | | 85MC (10MC Swp) | 83.25MC 87.75MC | 6 | | | |
| | | | 79MC (10MC Swp) | 77.25MC 81.75MC | 5 | | | |
| | | | 69MC (10MC Swp) | 67.25MC 71.75MC | 4 | | | |
| | | | 63MC (10MC Swp) | 61.25MC 65.75MC | 3 | | | |
| | | | 57MC (10MC Swp) | 55.25MC 59.75MC | 2 | | | |

RF TRAP ADJUSTMENT

Some types of RF interference may be reduced by adjusting A32 for MINIMUM interference while observing the picture.

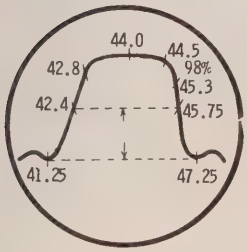


FIG. 3

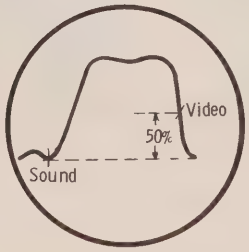


FIG. 4

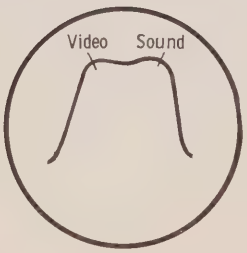
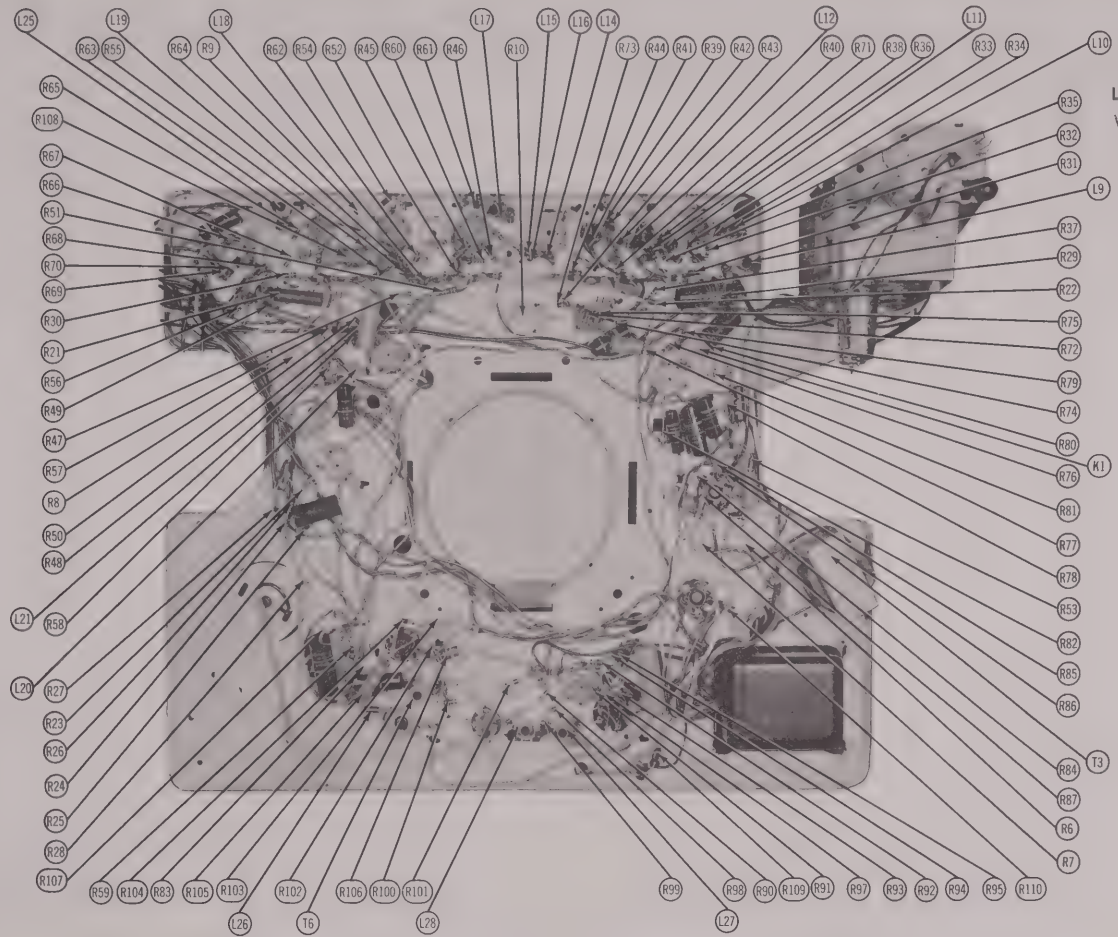


FIG. 5



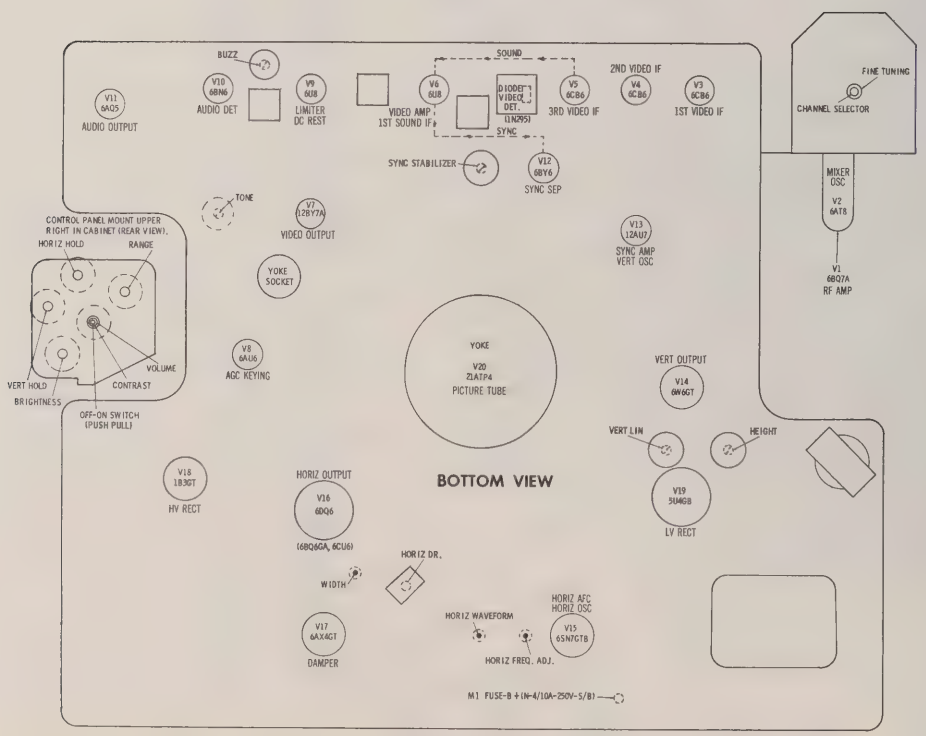

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

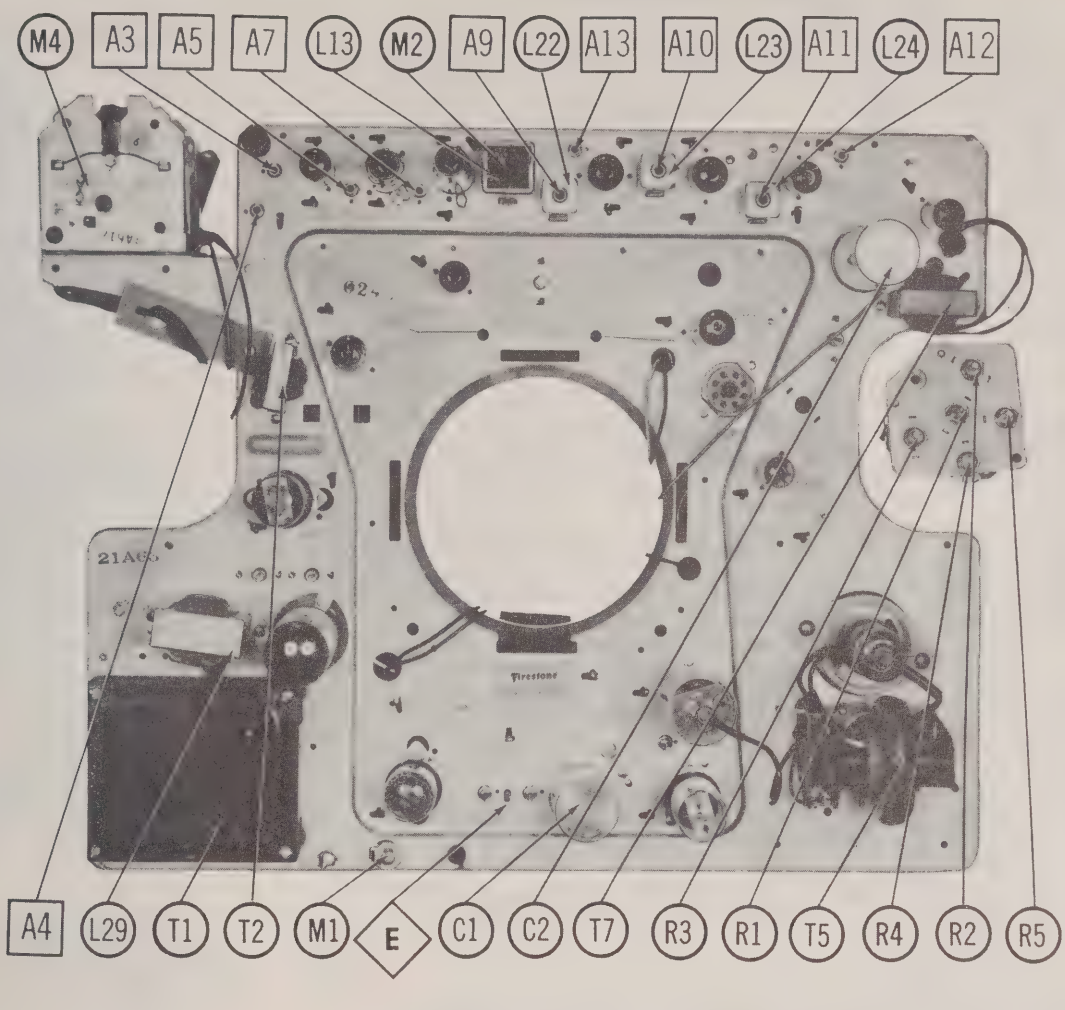
# RESISTANCE MEASUREMENTS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6BQ7A | INF | 550K | 0Ω | 0Ω | .1Ω | †1500Ω | 300K | INF | 0Ω |
| V2 | 6AT8 | 10K | †7000Ω | 0Ω | 0Ω | .1Ω | †17K | †48K | 0Ω | 220K |
| V3 | 6CB6 | 26K | 47Ω | 0Ω | .1Ω | †3200Ω | †3200Ω | 0Ω | | |
| V4 | 6CB6 | 20K | 47Ω | 0Ω | .1Ω | †3200Ω | †3200Ω | 0Ω | | |
| V5 | 6CB6 | .1Ω | 180Ω | 0Ω | .1Ω | †2700Ω | †2700Ω | 0Ω | | |
| V6 | 6U8 | †8800Ω | 1.9Ω | †35K | 0Ω | .1Ω | †35K | 560Ω | 1.5Ω | 3900Ω |
| V7 | 12BY7 | • 85Ω | 1Meg | 0Ω | 0Ω | 0Ω | .1Ω | †3600Ω | †1700Ω | 0Ω |
| V8 | 6AU6 | †3600Ω | †1700Ω | 0Ω | .1Ω | 120K | †39Ω | †1700Ω | | |
| V9 | 6U8 | 0Ω | 100K | †150K | .1Ω | 0Ω | †84K | 0Ω | 1Meg | 0Ω |
| V10 | 6BN6 | •350Ω | 3.1Ω | .1Ω | 0Ω | †6500Ω | 5.2Ω | †330K | | |
| V11 | 6AQ5 | 0Ω | 270Ω | .1Ω | 0Ω | †1100Ω | †500Ω | 0Ω | | |
| V12 | 6BY6 | 50K | 0Ω | 0Ω | .1Ω | †820K | †29K | 2.2Meg | | |
| V13 | 12AU7 | • ǂ1.3Meg | •1.6Meg | 190Ω | .1Ω | .1Ω | †13K | 47K | 0Ω | 0Ω |
| V14 | 6W6GT | TP | 0Ω | †450Ω | †450Ω | 2.2Meg | TP | .1Ω | •1700Ω | |
| V15 | 6SN7GTB | 410K | †56K | 0Ω | 1.5Meg | • †27K | 410K | .1Ω | 0Ω | |
| V16 | 6DQ6 | TP | 0Ω | NC | †6900Ω | 470K | TP | .1Ω | 100Ω | TOP CAP ǂ10Ω |
| V17 | 6AX4GT | NC | NC | 600K | NC | †40Ω | NC | .1Ω | 0Ω | |
| V18 | 1B3GT | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP ǂ 335Ω |
| V19 | 5U4GB | NC | 30K | NC | 21Ω | NC | 19Ω | NC | 30K | |
| V20 | 21ATP4 | 0Ω | 1.1Meg | PIN 6 †100K | PIN 10 ǂ470K | PIN 11 • 270K | PIN 12 .1Ω | | | |

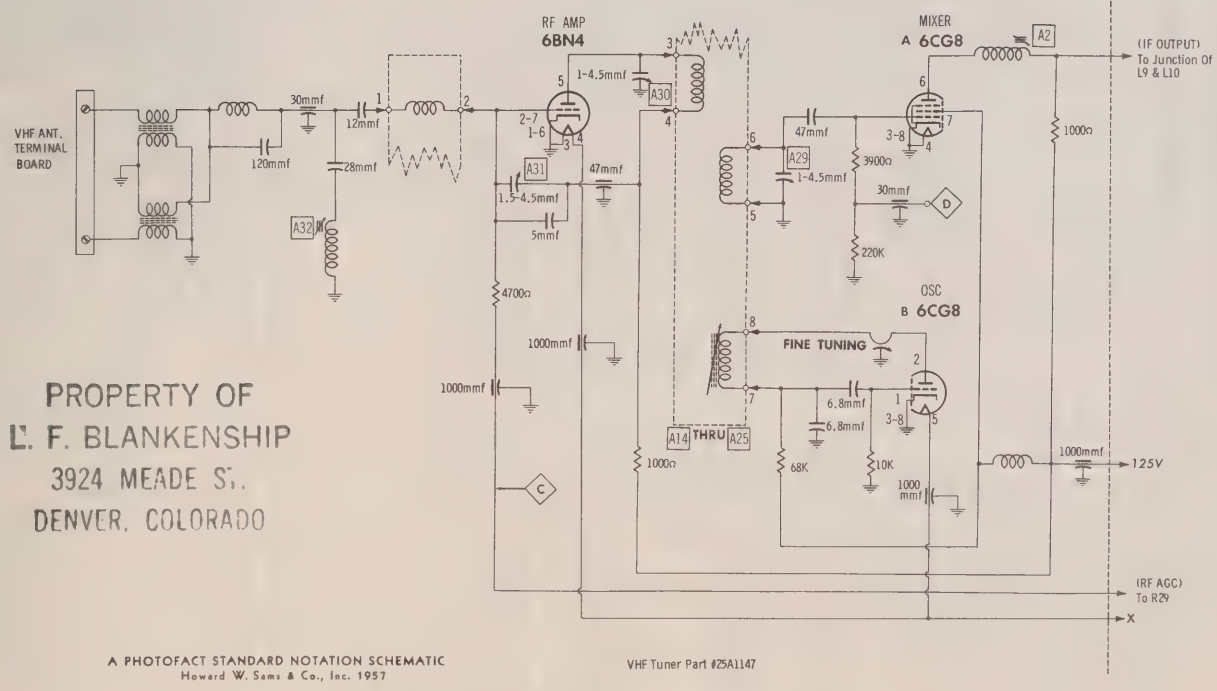
† MEASURED FROM PIN 8 OF V19.
ǂ MEASURED FROM PIN 3 OF V17.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
TP TIE POINT
NC NO CONNECTION




# TUBE PLACEMENT CHART




## CHASSIS TOP VIEW




PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

VHF Tuner Part #25A1147

## ALTERNATE TUNER SCHEMATIC

SET 373 FOLDER 5

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | RF Amplifier | 6BQ7A | |
| V2 | Mixer-Oscillator | 6AT8 | |
| V3 | 1st Video IF Amp | 6CB6 | |
| V4 | 2nd Video IF Amp | 6CB6 | |
| V5 | 3rd Video IF Amp | 6CB6 | |
| V6 | Video Amp. - 1st Sound IF Amp | 6U8 | |
| V7 | Video Output | 12BY7 | |
| V8 | AGC Keying | 6AU6 | |
| V9 | Limiter-DC Restorer | 6U8 | |

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V10 | Audio Detector | 6BN6 | |
| V11 | Audio Output | 6AQ5 | |
| V12 | Sync Separator | 6BY6 | |
| V13 | Sync Amp -Vert Osc | 12AU7 | |
| V14 | Vert Output | 6W6GT | |
| V15 | Horiz. AFC-Horiz. Osc. | 6SN7GTB | |
| V16 | Horiz. Output | 6DQ6 | Note 1 |
| V17 | Damper | 6AX4GT | |
| V18 | HV Rectifier | 1B3GT | |
| V19 | LV Rectifier | 5U4GB | |

Note 1 6CU8 or 6BQ6GA may be used in some versions

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|
| | FIRESTONE PART No | GENERAL ELECTRIC PART No | SYLVANIA PART No | |
| V30 | 21ATP4 | 21ATP4A, 21ATP4 ① | 21ATP4, 21ATP4A ② 21ATP4A ③ | ⊥ Aluminized ② Silver screen "85" |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP | VOLT | FIRESTONE PART No | AEROVOX PART No. | CORNELL DUBILIER PART No. | MALLORY PART No | PYRAMID PART No | SANGAMO PART No | SPRAGUE PART No |
| C1A | ▲80 | 300 | 45X428 | AFH4-07 | DO060 | FP235 TC65 | TMQ-131 | T-525 MT-4510 | R2303 * |
| B | ▲20 | 300 | | | | | | | |
| C | ▲30 | 50 | | | | | | | |
| C2A | ▲80 | 300 | 45X429 | AFH4-58-75 | BO364 BR505 | FP227 5 TC68 | TMT-29 TD-60-450 | T-715 MTD-4530 | R2304 * |
| B | ▲80 | 300 | | | | | | | |
| C | ▲40 | 50 | | | | | | | |
| C3 | 4 | 50 | 45X418 | PR8150V4 | BBR4-50 | TC30 | TD-4-50 | MT-0504 | TVA-1402 |
| C4 | 4 | 50 | 45X418 | PR8150V4 | BBR4-50 | TC30 | TD-4-50 | MT-0504 | TVA-1402 |

* Non-catalog item.

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | FIRESTONE PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C5 | 120 | | 13L8V121K | | D6-121 | L10T12 | ED-120 | | | 10% |
| C6 | 6.8 | | 13L8C6R8I | NPO-81 6.8 | TCZ-6R8 | C10V68C | TCO-6.8 | ZT-5568 | 5TCCB-V68 | |
| C7 | 5-25 | | 31B-901-03 | | | | | | | |
| C8 | 5 | | 13L8C050D | NPO-81 5 | TCZ-5 | C10V5C | TCO-5 | ZT-555 | 5TCCB-V5 | |
| C9 | 6.8 | | 13L8C6R8I | NPO-81 6.8 | TCZ-6R8 | C10V68C | TCO-6.8 | ZT-5568 | 5TCCB-V68 | |
| C10 | 800 | | 13M-330EA-102ZC | | | | | | | |
| C11 | 2.2 | | 13L8GP2R2C | NPO-81 2.2 | TCZ-2R2 | C10V22C | TCO-2.2 | | 5TCCB-V22 | |
| C12 | 1000 | | 13L8X02Z | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C13 | 5-3 | | 31B-902 | | 829-3 | | 311S-D | CT565A | | |
| C14 | 800 | | 13M-330EA-102ZC | | | | | | | |
| C15 | 800 | | 13M-330EA-102ZC | | | | | | | |
| C16 | 80 | | 13M-320Q-800J | | | | | | | |
| C17 | 5-3 | | 31B-902 | | 829-3 | | 311S-D | CT565A | | |
| C18 | 1 0 | | 13D-1I1-20 | NP0-81 1.0 | TCZ-1 | | TCO-1 | | | |
| C19 | 800 | | 13M-330EA-102ZC | | | | | | | |
| C20 | 1000 | | 13L8X102Z | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C21 | 10 | | 13L8U A10OD | BPD-00001 | DD-100 | L10QI | ED-10 | UC-541 | 5GA-QI | |
| C22 | 10 | | 13L8Q00A | | | | | | | N1400 |
| C23 | 1000 | | 13L8X02Z | BPD-001 | | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C24 | 47 | | | SI 47 | D6-470 | LT6Q47 | GP-47 | UC-5447 | 5GA-Q47 | |
| C25 | 47 | | | SI 47 | D6-470 | LT6Q47 | GP-47 | UC-5447 | 5GA-Q47 | |
| C26 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C27 | 680 | | | BPD-00068 | DD-681 | BYA0T68 | ED-680 | UC-5368 | 5GA-T68 | |
| C28 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C29 | 56 | | | NPO-81 56 | TCZ-56 | C10Q56C | TCO-56 | | | NPO |
| C30 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C31 | 680 | | | BPD-00068 | DD-681 | BYA0T68 | ED-680 | UC-5368 | 5GA-T68 | |
| C32 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C33 | 68 | | | NPO-81 68 | TCZ-68 | C10Q68C | TCO-68 | | 5TCC-Q68 | NPO |
| C34 | 680 | | 80X15 | BPD-00068 | DD-681 | BYA0T68 | ED-680 | UC-5368 | 5GA-T68 | |
| C35 | 470 | | 80X4 | BPD-00047 | DD-471 | BYA0T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C36 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C37 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C38 | .047 | 400 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C39 | 100 | | | SI 100 | D6-101 | LT6TI | GP-100 | UC-531 | 5GA-TI | |
| C40 | .1 | 400 | | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C41 | .047 | 600 | RCP10M6473M | BPD-05 | DF-503 | CUB6S47 | | GEM-6147 | 6TM-S47 | |
| C42 | 1.5 | | | NPO-81 1.5 | TCZ-1R5 | C10V15C | TCO-1.5 | | 5TCCB-V15 | |
| C43 | 1000 | | | BPD-001 | DD-102 | BYA6DI | ED-1000 | DC52I | 5HK-DI | |
| C44 | 5000 | | | BPD-005 | DD-502 | BYA1OD5 | ED-005 | DC52S | 5HK-D5 | |
| C45 | 100 | | | SI 100 | D6-101 | LT6TI | GP-100 | UC-531 | 5GA-TI | |
| C46A | 1000 | | 80X3 | BPD-2X001 | DD2-102 | BYC6DDI | ED2-001 | DCD52I | 5HK-2DI | |
| B | 1000 | | | | | | | | | |
| C47 | 15 | | | | | | | | | N330 |
| C48A | 1000 | | 80X3 | BPD-2X001 | DD2-102 | BYC6DDI | ED2-001 | DCD52I | 5HK-2DI | |
| B | 1000 | | | | | | | | | |
| C49 | 470 | | 80X4 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C50 | 5000 | | | BPD-005 | DD-502 | BYA1OD5 | ED-005 | DC52S | 5HK-D5 | |
| C51 | .0047 | 400 | RCP10M4472M | BPD-0047 | DF-472 | CUB6D47 | GP-4700 | GEM-6247 | 6TM-D47 | |
| C52 | 022 | 600 | RCP10M6223M | BPD-02 | DD-203 | CUB6S22 | ED-02 | GEM-6122 | 6TM-S22 | |
| C53 | 4 | 400 | | | | | | | | Note 1 |
| C54 | 1000 | 1000 | 47X753 | HVD15-1000 | DD80-102 | BYA10DI | ED15-1000 | DC302I | 10EKD-DI | |
| C55 | .47 | 200 | RCP10M2474M | P388N-47 | | CUB2P47 | | GEM-3047 | 2TM-P47 | |
| C56 | .47 | 200 | RCP10M2474M | P388N-47 | | CUB2P47 | | GEM-3047 | 2TM-P47 | |
| C57 | 330 | | 47X570 | 1468-00083 | D6-331 | 5WST33 | GP-330 | UC-5333 | 1FM-333 | |
| C58 | 5000 | | | BPD-005 | DD-502 | BYA6D5 | ED-005 | DC52S | 5HK-D5 | |
| C59 | .047 | 400 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C60 | .047 | 400 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C61 | 01 | 400 | | BPD-01 | DD-103 | CUB4S1 | GP-10000 | GEM-41 | 4TM-S1 | |
| C62 | 022 | 200 | RCP10M2223M | BPD-02 | DD-203 | CUB4S22 | ED-02 | GEM-4122 | 2TM-S22 | |
| C63 | .047 | 400 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C64 | .047 | 200 | RCP10M2473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 2TM-S47 | |
| C65 | 1 | 400 | | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C66 | 18 | | RCM20B180K | 1468-00001S | D6-180 | 5WSQ18 | GP-18 | UC-5418 | 1FM-418 | |
| C67 | .047 | 400 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |

## CAPACITORS (cont)

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP | VOLT | FIRESTONE PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C68 | 82 | | RCM20B820K | 1468-00008S | D6 820 | 5WSQ82 | GP-82 | | 1FM 482 | |
| C69 | 100 | | | 1468-0001 | D6 101 | 5WST1 | GP-100 | UC-531 | 1FM-31 | |
| C70 | 047 | 200 | RCP10M2473M | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C71 | 022 | 200 | RCP10M2223M | BPD-02 | DD-203 | CUB4S22 | ED-02 | GEM-4122 | 2TM-S22 | |
| C72 | .47 | 200 | RCP10M2474M | P388N-47 | | CUB2P47 | | GEM-2047 | 2TM P47 | |
| C73 | 220 | | | 1468-00032 | D6-221 | 5WST33 | GP-220 | UC-5333 | 1FM-333 | |
| C74 | 01 | 400 | | BPD 01 | DD-103 | CUB4S1 | GP-10000 | GEM-41 | 4TM-S1 | |
| C75 | 820 | | RCM20B821K | 1467-00082 | D6-821 | 1WST82 | GP-820 | | 1FM-382 | |
| C76 | 680 | | | 1467-00068 | DD-681 | BYA10T68 | GP-680 | UC-5368 | 5GA-T68 | |
| C77 | 170-700 | | 17A371 | | | | | GEM-4147 | 4TM-S47 | |
| C78 | .047 | 600 | RCP10M4473M | BPD-05 | DF-503 | CUB4S47 | | | | 10% |
| C79 | 39 | 5000 | 47X756 | | | | | | | |
| C80 | 1 | 600 | | P688N-1 | DF-104 | CUB6P1 | | GEM-601 | 6TM P1 | |
| C81 | 15 | 200 | RCP10M215M | P288N-15 | | CUB2P15 | | GEM-2015 | 2TM-P15 | |
| C82 | 10000 | 1000 | 47X615 | DAC-27 | DD6-103 | HVE1G81 | | | 3L-610 | |
| C83 | 10000 | 1000 | 47X615 | DAC-27 | DD6-103 | HVE1G81 | | | BL-610 | |
| C84 | .015 | 600 | RCP10M6153M | BPD-015 | DD6-153 | CUB6S15 | ED-015 | GEM-6115 | 6TM-S15 | |
| C85 | .1 | 200 | | P268N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C86 | .047 | 600 | RCP10M6473M | BPD-05 | DF-503 | CUB6S47 | | GEM-6147 | 6TM-S47 | |

Note 1. Not used in some versions.

## CONTROLS

| ITEM No | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | FIRESTONE PART No | CENTRALAB PART No. | CLAROSTAT PART No | IRC PART No. | MALLORY PART No. | |
| R1A | 1000Ω | ½ | 78X37 | | | | | Contrast |
| B | 1Meg | ½ | | | | | | Volume - Tap ⑥ 250K |
| R2A | 500K | ½ | 40X416 | AB-59 | A47-500K-S | QU-133 | U50 | Brightness |
| B | Shaft | | | AK-8 | RS-3/16 | NQ | D8-37 | |
| R3A | 1.5Meg | ½ | 40X415 | AB-742 | A47-1.5Meg-S | QU-136 | U155 | Range |
| B | Shaft | | | AK-8 | RS-3/16 | NQ | D8-37 | |
| R4A | 50K | ½ | 40X414 | AB-21 | A47-50K-S | QU-123 | U35 | Horiz. Hold |
| B | Shaft | | | AK-8 | RS-3/16 | NQ | D8-37 | |
| R5A | 1.5Meg | ½ | 40X415 | AB-742 | A47-1.5Meg-S | QU-136 | U155 | Vert. Hold |
| B | Shaft | | | AK-8 | RS-3/16 | NQ | D8-37 | |
| R8A | 2.5Meg | ½ | 40X405 | AB-83 | A47-2.5Meg-S | BU-239 | TA255L | Height |
| B | Shaft | | | AK-11 | FKS-1/2 | TM2-K11 | Not Req. | |
| R7A | 1500Ω | ½ | 40X410 | AB-8 | A47-1500-S | QU-109 | PTA153L | Vert. Lin. |
| B | Shaft | | | AK-1 | FKS-1/2 | SQ | Not Req. | |
| R8A | 100K | ½ | 40X407 | B-60 | A47-100K-S | BU-128 | TA15L | Tone |
| B | Shaft | | | Not Req. | FKS-1/2 | TM2-K11 | Not Req. | |
| R9 | 500Ω | 2 | 40X397 | 3S-500 | | | FL-500 | Buzz |
| R10A | 2.5Meg | ½ | 40X405 | AB-83 | A47-2.5Meg-S | BU-239 | TA255L | Sync Stabilizer |
| B | Shaft | | | AK-4 | FKS-1/2 | TM3-K11 | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | FIRESTONE PART No. | IRC PART No. | |
| R11 | 680K | | 12TAE684M | BTS-680K | |
| R12 | 4700Ω | | 12TAE472K | BTS-4700 | |
| R13 | 820K | | 12TAE824K | BTS-820K | |
| R14 | 470K | | 12TAE474K | BTS-470K | |
| R15 | 8200Ω | | | BTS-8200 | |
| R16 | 220K | | 12TAE224M | BTS-220K | |
| R17 | 15K | | 12TAE153K | BTS-15K | |
| R18 | 47K | | 12TAE473K | BTS-47K | |
| R19 | 5600Ω | | 12TAE562K | BTS-5600 | |
| R20 | 10K | | 12TAE103K | BTS-10K | |
| R21 | 1500Ω | 1 | | BTA-1500 | |
| R22 | 6800Ω | | | BTS-6800 | |
| R23 | 47K | | | | |
| R24 | 68K | | | | |
| R25 | 22K | | | BTS-22K | |
| R26 | 100K | | | | |
| R27 | 47K | | | | |
| R28 | 47K | | | | |
| R29 | 390K | | | | |
| R30 | 820K | | | BTS-820K | |
| R31 | 1000Ω | | | | |
| R32 | 4700Ω | | | | |
| R33 | 1000Ω | | | | |
| R34 | 47Ω 5% | | | BTS-47 5% | |
| R35 | 68K | | | | |
| R36 | 1000Ω | | | BTS-1000 | |
| R37 | 470Ω | | | BTS-470 | |
| R38 | 47Ω 5% | | | BTS-47 5% | |
| R39 | 22K | | | BTS-22K | |
| R40 | 47K | | | | |
| R41 | 1000Ω | | | BTS-1000 | |
| R42 | 180Ω | | | BTS-180 | |
| R43 | 47K | | | BTS-47K | |
| R44 | 3900Ω 5% | | | BTS-3900 5% | |
| R45 | 5600Ω | 1 | | BTA-5600 | |
| R46 | 10K | | | BTS-10K | |
| R47 | 680Ω | | | BTS-680 | |
| R48 | 1Meg | | | BTS-1Meg | |
| R49 | 3900Ω | 4 | 43X331 | | |
| R50 | 68Ω | | | BTS-68 | |
| R51 | 820Ω | | | BTS-820 | |
| R52 | 33K | | | BTS-33K | |
| R53 | 2200Ω | | | BTS-2200 | |
| R54 | 1Meg | | | BTS-1Meg | |
| R55 | 100K | | | BTS-100K | |
| R56 | 100K | | | BTS-100K | |
| R57 | 100K | | | BTS-100K | |
| R58 | 22K | | | BTS-22K | |
| R59 | 1.8Meg | | | BTS-1 8Meg | |
| R60 | 33K | | | BTS-33K | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | FIRESTONE PART No. | IRC PART No. | |
| R61 | 560Ω | | | BTS-560 | |
| R62 | 100K | | | BTS-100K | |
| R63 | 82K | | | BTS-82K | |
| R64 | 68K | | | BTS-68K | |
| R65 | 680Ω | | | BTS-680 | |
| R66 | 330K | | | BTS-330K | |
| R67 | 4700Ω | | | BTS-4700 | |
| R68 | 120K | | | BTS-120K | |
| R69 | 470Ω | 1 | | BTA-470 | |
| R70 | 270Ω | 1 | | BTA-270 | |
| R71 | 150K | | | BTS-150K | |
| R72 | 2 2Meg | | | BTS-2 2Meg | |
| R73 | 270K | | | BTS-270K | |
| R74 | 820K | | | BTS-820K | |
| R75 | 27K | 1 | | BTA-27K | |
| R76 | 47K | | | BTS-47K | |
| R77 | 4700Ω | | | BTS-4700 | |
| R78 | 1.2Meg | | | BTS-1.2Meg | |
| R79 | 180K | | | BTS-180K | |
| R80 | 2.2Meg | | | BTS-2.2Meg | |
| R81 | 470K | | | BTS-470K | |
| R82 | 22K | | | BTS-22K | |
| R83 | 470K | | | BTS-470K | |
| R84 | 2.2Meg | | | BTS-2.2Meg | |
| R85 | 12K 5% | | | BTS-12K 5% | |
| R86 | 100Ω | | | BTS-100 | |
| R87 | 680Ω | 1 | | BTA-680 | |
| R88 | 560Ω | | | | |
| R89 | 560Ω | | | | |
| R90 | 220K | | | | |
| R91 | 330K | | | | |
| R92 | 820K | | | | |
| R93 | 82K | | | | |
| R94 | 330K | | | | |
| R95 | 3900Ω | | | | |
| R96 | 120K | | | BTS-120K | |
| R97 | 82K | | | | |
| R98 | 22K | | | | |
| R99 | 10K | | | BTS-10K | |
| R100 | 1Meg | | | BTS-1Meg | |
| R101 | 56K | | | BTS-56K | |
| R102 | 68Ω | | | BTS-68 | |
| R103 | 470K | | | BTS-470K | |
| R104 | 68Ω | | | BTS-68 | |
| R105 | 6800Ω | 2 | | BTS-6800 | |
| R106 | 100Ω | 2 | | BTS-100 | |
| R107 | 4700Ω | | | BTS-4700 | |
| R108 | 1700Ω | 10 | 43X294 | | Note 1 |
| R109 | 100K | 2 | | BTS-100K | |
| R110 | 270K | | | BTS-270K | |

Note 1. Some versions may use a 1200Ω, 10W in this application.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | FIRESTONE PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No |
| T1 | 117VAC ▲1.5A | 525VCT 270A | ▲ 3A | 6 3V ▲9.6A | 53X354A | | P-2830 ① ② | P-8332 ② | 26R88 ③ ④ | R-85BC |

① Parallel and phase 6 3V ▲ 6A filament windings.
② Tape 6 3V ▲ 1 25A filament winding
③ Parallel and phase filament windings
④ Tape 6.3V ▲ 1.2A filament winding.

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | FIRESTONE PART No | Halldorson PART No. | Merit PART No. | RCA TYPE No. | Ram PART No. | Stancor PART No | Thordarson PART No | Triad PART No |
| T2 | Vert. Osc. | 54X10 | B6702 | A-3003 | 209T1 ⊥ | V405 | A-8125 | 25A03 | A-97X |
| T3 | Vert. Output | 51X175-A | Z1900 ③ | A-2823 ① ③ | | V302 ① ③ | A-8146 ④ | 26R72 ① ③ | A-116X ① |
| T4A | Yoke-Horiz. (20MH) | 9A-2386-1B | DF607 ③ ⑦ | MDF-93 ③ ⑦ | 235D1 ⑥ ⑦ | Y90T10/43 ⑥ ⑦ | DY-16A ⑥ ⑦ | Y-16 ⑥ ⑦ | Y-41 & NW21 ⑦ |
| B | (90°)-Vert. (39MH) Alt. Yoke | 9A-2388 ⑤ | | | | | | | |
| M6 | Rear Cover And Centering Device | 2A435 | | | | | | | YC1 |
| | Yoke Clamp | 30X811 | | | | | | | CL1 |
| T5 | Horiz Output | 53X355 | FB419 & RF800 * ④ | HVO-36 & MWC-11 * ③ | 235T1 & 212R1 * ③ | X094 & 20IR16 * ③ | HO-256 & WC-13 * ③ | FLY-16 & WC-18 * ③ | D-95 & WC-12 * ③ | WLC-5 |
| T6 | Width Coil (7-9MH) | 9A2361 | RF802 ⑦ | MWC-6 | 21IR1 | 20IR16 | WC-8 | WC-22 | | |

⊥ Drill new mounting hole(s)
② Use 8 to 1 turns ratio
④ Connect as auto-transformer.
⑤ Cut and tape green lead.
⑥ Includes resistors R88 and R89.
⑦ Use original rear cover and centering device and original horizontal damping network
③ Mount with leads out top. Connect same as original
⑧ Do not use tap.
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application

## *HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

| | ORIGINAL TERMINAL CONNECTIONS | Halldorson Replacement Connections | Merit Replacement Connections | RCA Replacement Connections | Ram Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|---|---|---|---|
| | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 5 |
| | 4 | 7 | 7 | 7 | 7 | 7 | 7 | 4 |
| | 3 | 7 | 7 | 7 | 7 | 7 | 7 | 3 |
| | 2 | 4 - Also see Note ⑦ | 4-Also see Note ⑦ | 4-Also see Note ⑦ | "T" -Also see Note ⑦ | 4 - Also see Note ⑦ | "T"-Also see Note ⑦ | YCT |
| | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 2 |
| | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Connect Width Coil Across → | 1 & 5 | Terma #1 & #2 of RF800 across 3 & 1 | MWC-11 across 3 & 1 | 212R1 across 3 & 1 | 20IR16 across 3 & 1 | WC-13 across 3 & 1 | WC-18 across 3 & 1 | 1 & 2 |
| Special Notes → | | ⑩ | ⑨ | ② | ⑨ | ⑨ | ⑨ | |

⑨ Connect approximately 100-150MMF ▲ 2KV in series with resistor (R107) and connect across horizontal yoke terminals #1 and #2 Change values of resistors R27 and R28 as necessary to obtain required peak to peak pulse voltage at plate of V9 (AGC keying tube)

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC | FIRESTONE PART No. | Halldorson PART No | Merit PART No | Stancor PART No | Thordarson PART No | Triad PART No | |
| T7 | 6300Ω | 6-8Ω | 51X181 | Z1000 ⊥ | A-2900 ⊥ | A-3856 ⊥ | 24S60 ⊥ | S-51X ⊥ | ⊥ Tape center tap on primary |

## SPEAKER

| ITEM No | TYPE | | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|---|
| | SIZE | FIELD | V C | IMP | FIRESTONE PART No | QUAM PART No. | |
| SP1 | 4" | PM | 6-8Ω | | 12A537 | 4A072S ⊥ | ⊥ Alternate part number used in some versions |
| SP2 | 8" | PM | 6-8Ω | | 12A539 | 8A4Z6 | |
| | 6" | PM | 6-8Ω | | 12A538 ① | 6A152T | |

## COILS (RF-IF)

| ITEM No. | USE | FIRESTONE PART No. | NOTES |
|---|---|---|---|
| L1 | Ant. Trans. | 31TA-413 | |
| L2 | IF Trap | 31T-417 | |
| L3 | IF Trap | 31T-416-01 | |
| L4 | Fil. Choke | 34A-732 | |
| L5 | Cathode Coupling | 31B-727 | |
| L6 | Screen Coil | 25A-154-01 | |
| L7A | Ant., RF, Mixer Grid & Osc. Coils | 31M-302-D | Channel 2 |
| B | " | 31M-303-D | Channel 3 |
| C | " | 31M-304-D | Channel 4 |
| D | " | 31M-305-D | Channel 5 |

| ITEM No. | USE | FIRESTONE PART No | NOTES |
|---|---|---|---|
| L7E | Ant., RF, Mixer Grid & Osc. Coils | 31M-306-D | Channel 6 |
| F | " | 31M-307-D | Channel 7 |
| G | " | 31M-308-D | Channel 8 |
| H | " | 31M-309-D | Channel 9 |
| I | " | 31M-310-D | Channel 10 |
| J | " | 31M-311-D | Channel 11 |
| K | " | 31M-312-D | Channel 12 |
| L | " | 31M-313-D | Channel 13 |
| L8 | Mixer Plate Coil | 31UA-506 | |

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | FIRESTONE PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No | |
| L9 | IF Coupling Coil | 9A2369 | 17-4534 | | 6225 | |
| L10 | 1st. Video IF | 9A2365 | 17-4534 | TV-131 | 6225 | |
| L11 | 2nd Video IF | 9A2363 | 17-4536 | | 6222 | Includes 47 25MC Trap |
| L12 | 3rd Video IF | 9A2364 | 17-4535 | | 6221 | Includes 41 25MC Trap |
| L13 | 4th. Video IF | 9A2370 | 17-4511 | | | Includes coils, cage & M3 |
| L14 | Resonant Choke | 9A2375 | | | | 30 Microhenries |
| L15 | Series Peaking Coil | 36A35 | 19-3023 * | TV-151 * | 6177 * | 82 Microhenries, wound on 2000Ω resistor |

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (cont)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | FIRESTONE PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L16 | Shunt Peaking Coil | 36A34 | 19-4400 | TV-190 | 6134 | 360 Microhenries |
| L17 | 4.5MC Trap | 9A2382 | | | | |
| L18 | Shunt Peaking Coil | 36A36 | 19-3100 | TV-181 | 6112 | 100 Microhenries |
| L19 | Shunt Peaking Coil | 36A1 | 19-3100 ▲ | TV-181 ▲ | 6112 ▲ | 100 Microhenries, wound on 270Ω resistor |
| L20 | Series Peaking Coil | 36A12 | 19-4160 | TV-184 ♦ | 6120 ♦ | 160 Microhenries, wound on 22K resistor |
| L21 | Shunt Peaking Coil | 36A37 ■ | 19-3250 ■ | TV-185 | 6181 ■ | 235 Microhenries, wound on 8200Ω resistor |
| L22 | 1st. Sound IF | 9A2383 | | | 1470A | Includes Cap. |
| L23 | 2nd. Sound IF | 9A2368 | 17-3495 | TV-113 | 6203 | Includes Cap. |
| L24 | 3rd. Sound IF | 9A2368 | 17-3495 | TV-113 | 6203 | Includes Cap. |
| L25 | Quadrature Coil | 9A2367 | 20-1005 | TV-121 | 1480 | |
| L26 | RF Choke | 9A2380 | 19-1001 | BC-562 | 4604 | 1.5 Microhenries |

* Parallel with 3900Ω resistor. ♦ Parallel with 22K resistor.
▲ Parallel with 270Ω resistor. ■ Parallel with 8200Ω resistor.

## TRANSFORMER (HORIZ. OSC.)

| ITEM No. | DC RES. | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | FIRESTONE PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | RCA TYPE No. | Ram PART No. | Thordarson PART No. | |
| L27 | *65Ω | | 9A2371 | | TV-165 | | | | HS-7 | 12.4-48.5 Millihenries Horiz. Freq. |
| L28 | 58Ω | | 9A2372 | | MWC-12 | | | | | 7.5-30 Millihenries Horiz. Waveform |

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ∿) | FIRESTONE PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| L29 | .270A | 39Ω | .9HY | 52X95-5 | C5037① | C-2996 ① | C-2326 | 26C44 ① | C-27X |

① Drill one new mounting hole.

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | FIRESTONE PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Vert. Integrator | 2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω | 76X7 | Aerovox<br>Centralab<br>Cornell-Dubilier<br>Erie<br>Sprague | PA-110<br>PC-100<br>115TM1<br>1405-01<br>V-1 |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | FIRESTONE PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M1 | N | 4/10A 125V S/B | 16X162 | 16X163 | 333.400 (N-4/10-125V S/B) | 346009 | N 4/10 | HN 3/10 to 1/2 |

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | FIRESTONE PART No. | CBS PART No. | SYLVANIA PART No. | |
| M2 | 1N295 * | | 1N60 | 1N34A | Video Det. (Pigtail) |

* CK706A or 1N60 may be used in some versions.

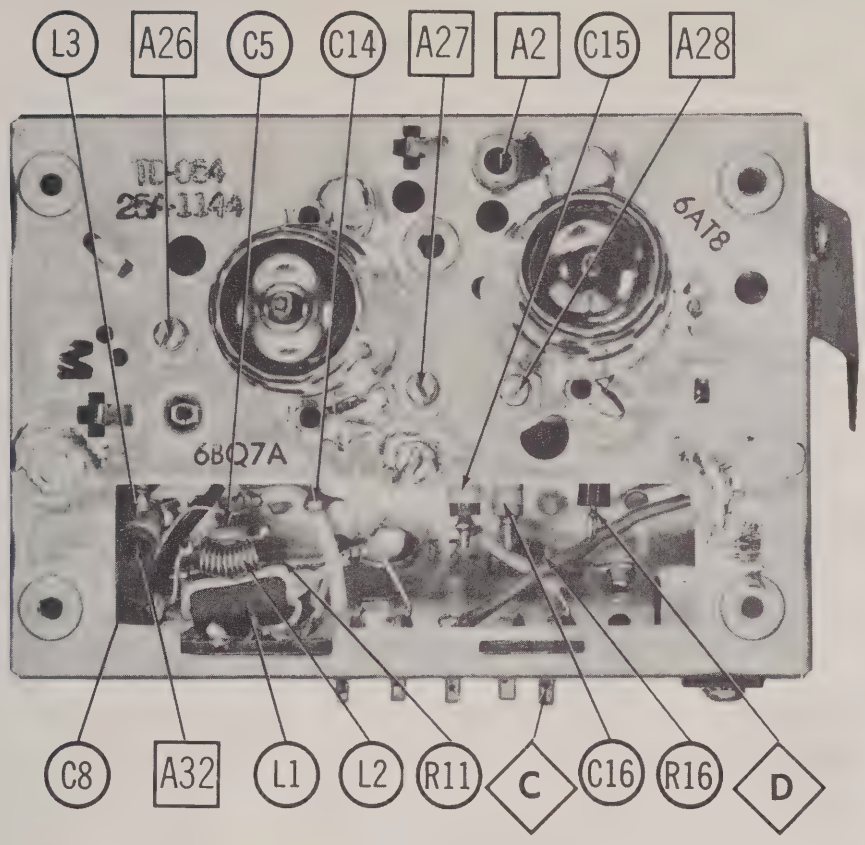
## MISCELLANEOUS

| ITEM No. | PART NAME | FIRESTONE PART No. | NOTES |
|---|---|---|---|
| M3 | Pilot Light | | Type #15 |
| M4 | Tuner | 25A1144 | VHF - Code 334-6-A63/A |
| | Tuner | 25A1147 | VHF - Code 334-6-N63/A |
| M5 | Switch | 2A464 | On-off (Push type) |
| M6 | Centering Device | 2A435 | Includes yoke rear cover |
| M7 | Ion Trap | 2A421 | |

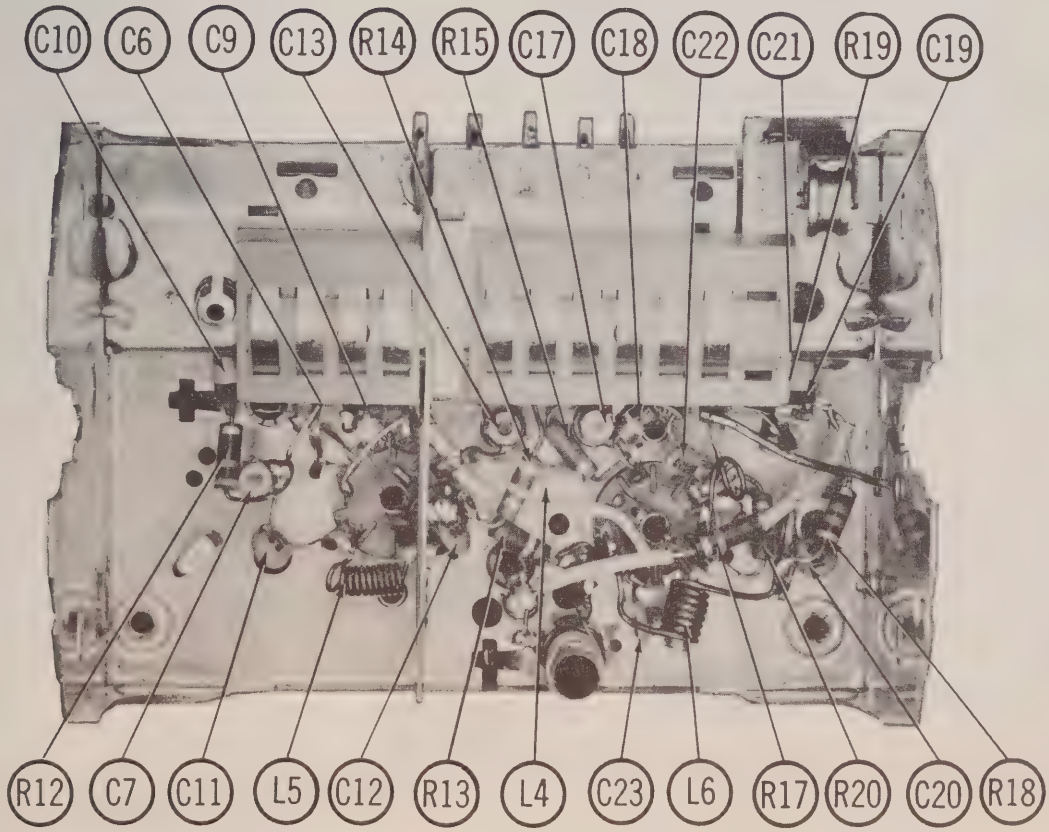
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

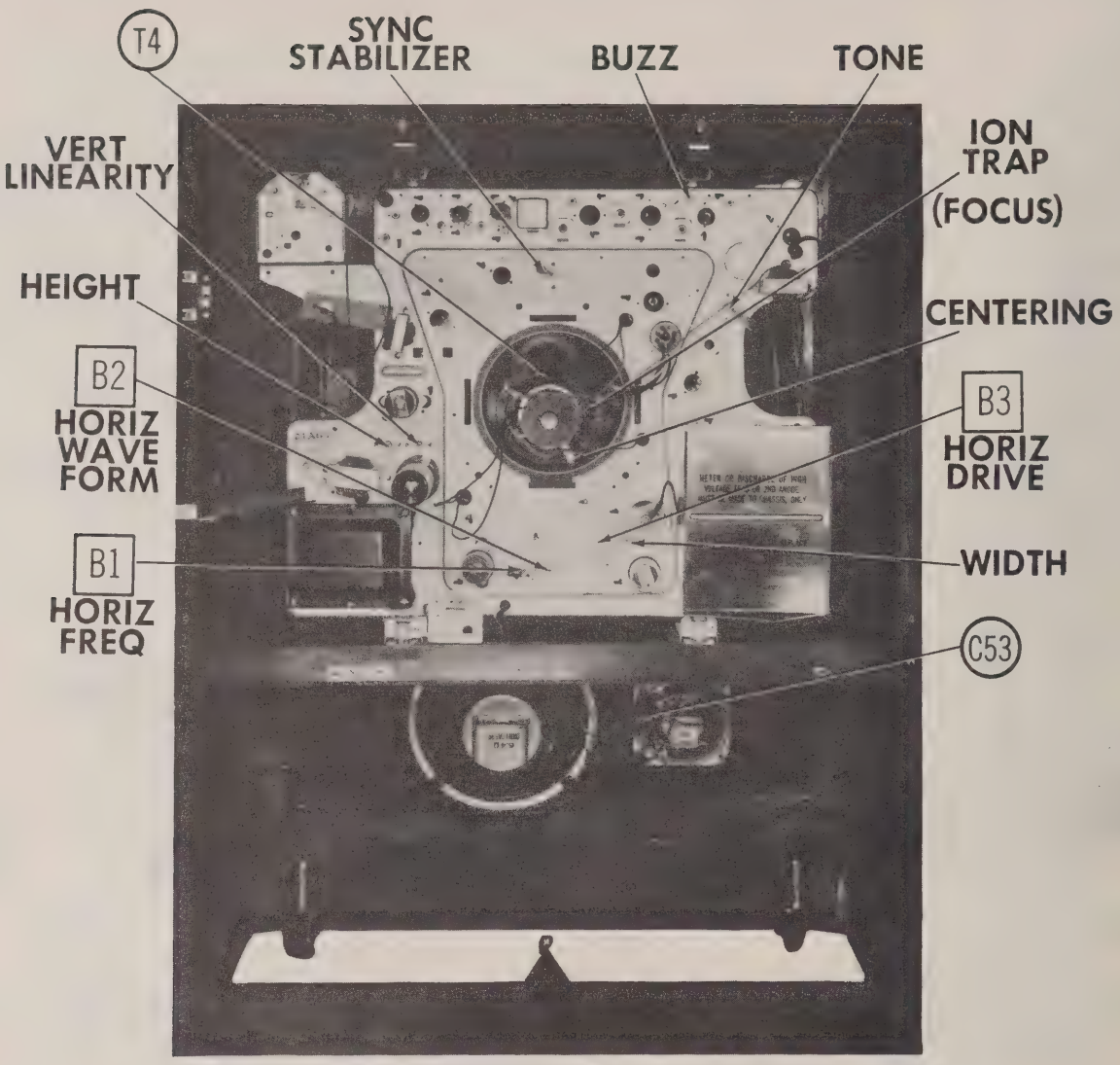
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 17X193-1 | Tinted |
| Mask | S-38A220 | |
| Knob | 10A870-11 | Channel Selector |
| Knob | 10A871-1 | Fine Tuning |
| Knob | 10A872-1 | Volume |
| Knob | 10A873-1 | Contrast |
| Knob | 10A861-2 | Control |




**RF TUNER-TOP VIEW**




**RF TUNER-BOTTOM VIEW**




## CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Connect a jumper across the horizontal waveform coil (L28). Set the horizontal hold control in the center of its range.

3. Starting with the horizontal frequency slug (B1) fully counter clockwise, adjust B1 in a clockwise direction until the picture synchronizes horizontally.

4. Remove the short from L28.

5. Connect the vertical amplifier lead of the scope to point ⓔ and the low side to chassis.

6. Adjust the horizontal waveform slug (B2) until the broad and narrow peaks of the waveform are of equal height as in Fig. 6.

7. Keep the picture in sync during step 6 by readjusting B1 if necessary.

8. Remove the scope connection and check lock-in by switching off channel and back again.

9. Set the horizontal drive trimmer (B3) clockwise as far as possible without the presence of vertical white lines or compression near the center of the picture.

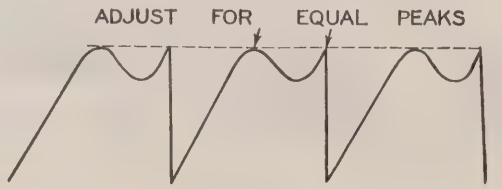



FIG. 6

PROPERTY OF
C. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

GENERAL ELECTRIC
MODELS C405, C406, 935, 936

GENERAL ELECTRIC
MODELS C405, C406, 935, 936

| | |
|---|---|
| TRADE NAME | General Electric Models C405, C406, 935, 936 |
| MANUFACTURER | General Electric Co., Products Service, Radio Receiver Dept., 869 Broad St., Utica, N.Y. |
| TYPE SET | AC Operated AM Receiver With Electric Clock |
| TUBES (Five) | Types 12AU6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier. |
| POWER SUPPLY | 105-120 Volts AC-60 Cycles — RATING .27 Amp. @ 117 Volts AC, 25 Watts (Without Clock) |
| TUNING RANGE—BROADCAST | 535-1620KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .01MFD | High side to pin 1 (grid) of 12AU6 (V1). Low side to B-. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2 A3, A4 | Adjust for maximum output. |
| 2. | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | | " | 1500KC | Tune to 1500KC signal. | " | A6 | Adjust for maximum output while rocking tuning gang. |



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H154

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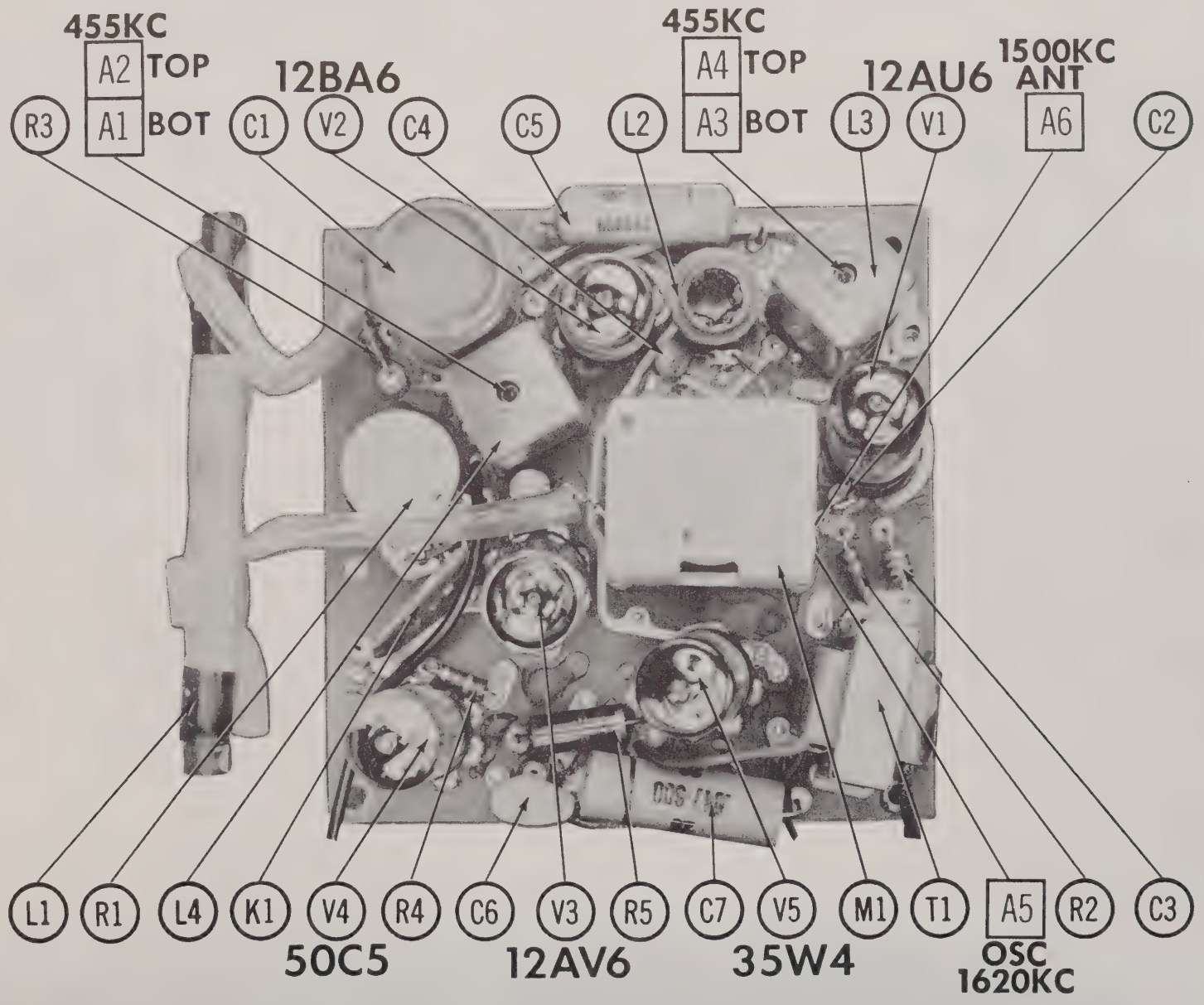



CHASSIS-TOP VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Converter | 12AU6 | |
| V2 | IF Amplifier | 12BA6 | |
| V3 | Det. -AVC-AF Amplifier | 12AV6 | |
| V4 | Output | 50C5 | |
| V5 | Rectifier | 35W4 | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | G. E. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | 75 | 150 | RCE-215 | PRS150V8040 | BBRD8415 | TCT3115 | TDLD-10 | MTD-303 | |
| B | 30 | 150 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | G. E. PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C2 | 22 | | RCW-3196 | SI22 | D6-220 | LT6Q22 | GP-22 | UC-5422 | 5GA-Q22 | Note 1 |
| C3 | 22 | | RCW-3196 | SI22 | D6-220 | LT6Q22 | GP-22 | UC-5422 | 5GA-Q22 | Note 1 |
| C4 | 3.0 | | RCW-3216 | | | | | | | N900 |
| C5 | .05 | 200 | RCC-086 | | | | | GEM-1611 | | 10% |
| C6 | 10000 | | RCW-3186 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C7 | .047 | 600 | RCN-053 | BPD-05 | DF-503 | CUB6S47 | | GEM-6147 | 6TM-S47 | Note 2 |

Note #1. Models C405 & C406 Use Part #RCW-3266.
Note #2. Models C405 & C406 Use Part #RCN-109.

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | G. E. PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 500K | ½ | RRC-325 | B-60 | A47-500K-Z | Q13-133 | U48 | Volume |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | G. E. PART No. | IRC PART No. | |
| R2 | 2.2Meg | | | BTS-2.2Meg | |
| R3 | 2.2Meg | | | BTS-2.2Meg | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | G-E PART No. | IRC PART No. | |
| R4 | 180Ω | | | BTS-180 | |
| R5 | 1500Ω | 2 | | BTB-1500 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | G. E. PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2700Ω | 3-4Ω | RTO-176 | Z1101 ① | A-3025① | A-3332 ① | 26S58 ② | S-12X ① | ① Use Orig. Mtg. Frame ② Bend Ears Down |

# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | G. E. PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | ROP-033 | 4A07 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | G. E. PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Loop Stick | RLL-064 | | | | |
| L2 | Osc. Coil | RLC-135 | | | | |
| L3 | Input IF | RTL-183 | 16-6758 | BC-352 | 13-PC9 | Models 935 & 936 |
| | Input IF | RTL-197 | 16-6758 | BC-352 | 13-PC9 | Models C405 & C406 |
| L4 | Output IF | RTL-183 | 16-6758 | BC-353 | 13-PC10 | Models 935 & 936 |
| | Output IF | RTL-197 | 16-6758 | BC-353 | 13-PC10 | Models C406 & C406 |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | G. E. PART No. | REPLACEMENT DATA |
|---|---|---|---|---|
| K1 | Audio Coupling Net. | 5000MMF, 220MMF, 2000MMF, 400MMF, 470K, 470K, 6.8Meg | RCW-3207 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | G. E. PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap. | RCT-093 | 2 gang (Ant. 15-290MMF, Osc. 19-125MMF) |

## CABINETS & CABINET PARTS

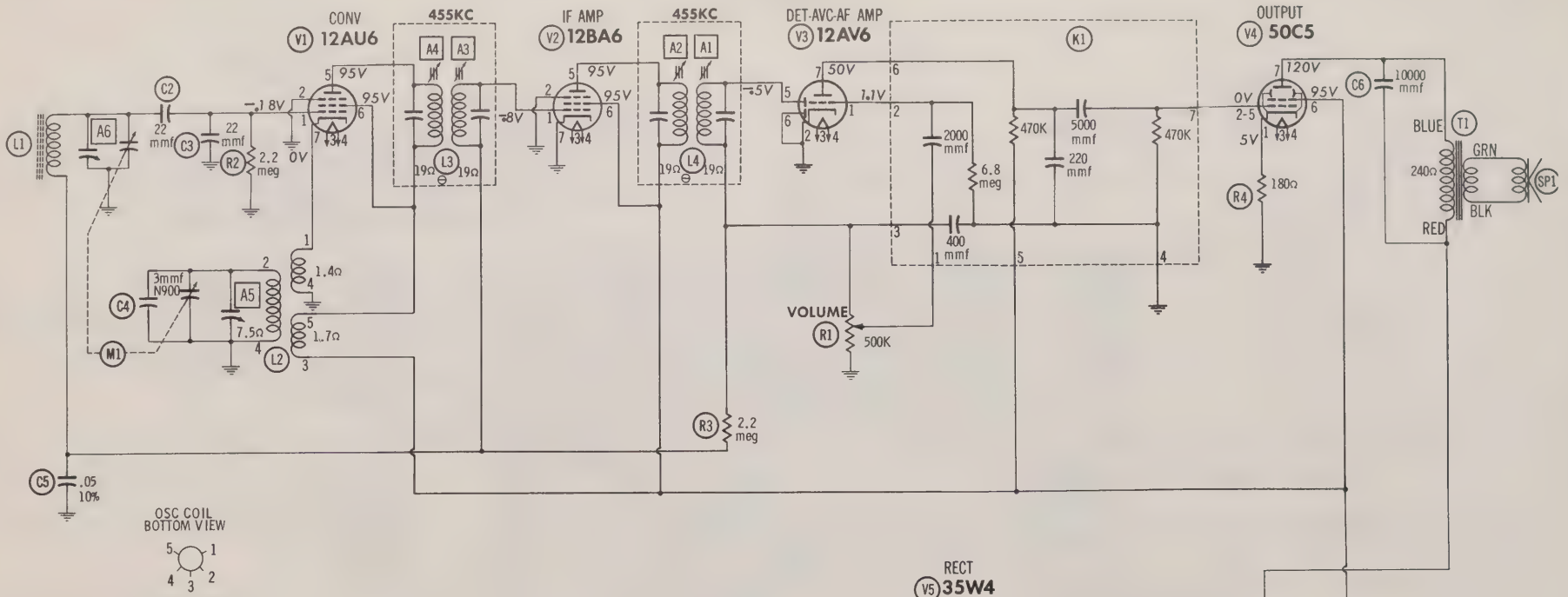
**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION | |
|---|---|---|---|
| Knob | RDK-425 | Volume | |
| Knob | RDK-595 | Tuning-Black | Model 935 |
| Knob | RDK-509 | Tuning-Clear & Red | Model 936 |
| Knob | RS-1095 | Tuning | Models C405, C406 |
| Knob | RZK-030 | Clock | Models 935, 936 |
| Knob | RS-1096 | Clock | Models C405, C406 |
| Cabinet (Front) | RAC-200 | White | Model 935, 936 |
| Cabinet (Back) | RAB-317 | Mahogany | Model 935 |
| Cabinet (Back) | RAB-318 | Red | Model 936 |
| Cabinet (Front) | RB-1004 | White (Includes Dial) | Model C405 |
| Cabinet (Front) | RB-1022 | Pink (Includes Dial) | Model C406 |
| Cabinet (Back) | RB-1005 | | Model C405 |
| Cabinet (Back) | RB-1006 | | Model C406 |
| Dial | RS-1166 | | Models C405, C406 |
| Pointer | RDP-087 | Red | Models 935, 936 |





GENERAL ELECTRIC MODEL C405




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12AU6 | 2.2Meg | 0Ω | 24Ω | 12Ω | †1500Ω | †1500Ω | 1.4Ω |
| V2 | 12BA6 | 2.7Meg | 0Ω | 24Ω | 36Ω | † 1500Ω | † 1500Ω | 0Ω |
| V3 | 12AV6 | 6.8Meg | 0Ω | 0Ω | 12Ω | 500K | 0Ω | † 470Ω |
| V4 | 50C5 | 180Ω | 470K | 36Ω | 78Ω | 470K | † 1500Ω | † 240Ω |
| V5 | 35W4 | NC | TP | 78Ω | 110Ω | 110Ω | 100Ω | 20K (Min) |

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

373-6

1 MEADE ST.
DENVER, COLORADO

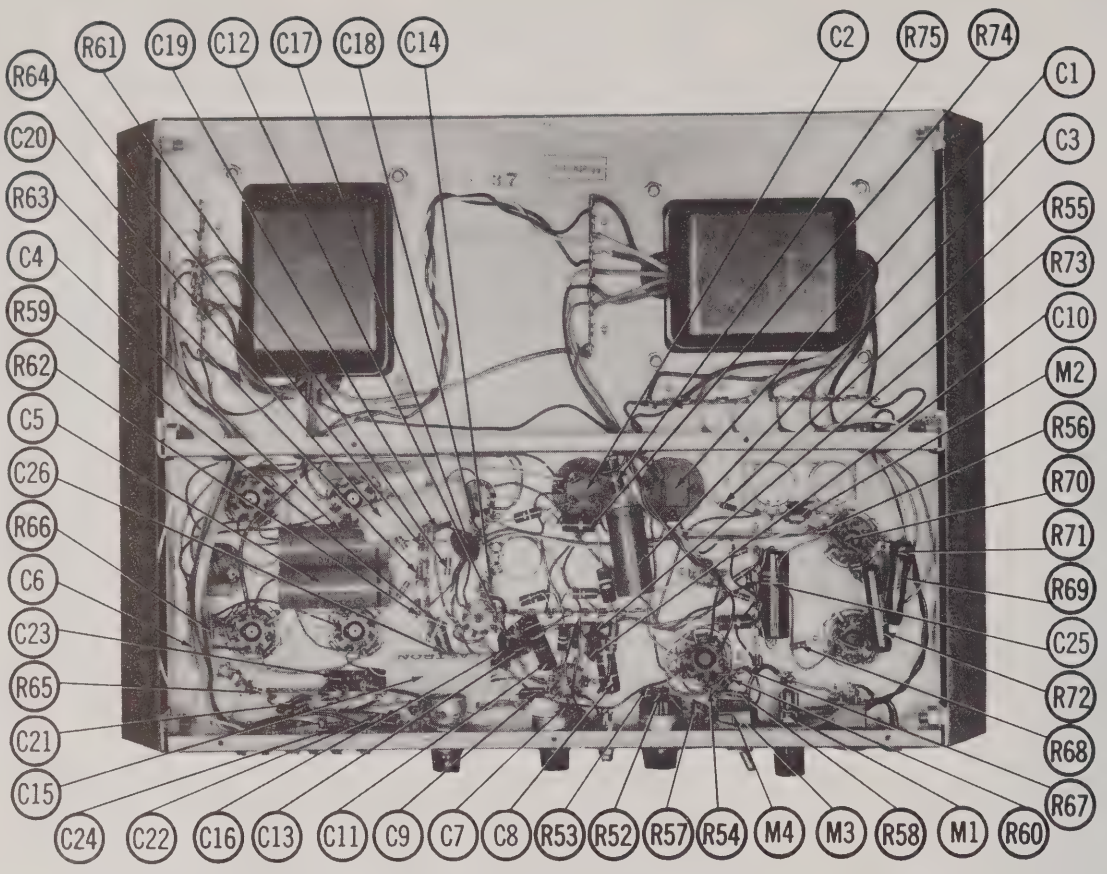
H. H. SCOTT
MODEL 280

H. H. SCOTT
MODEL 280

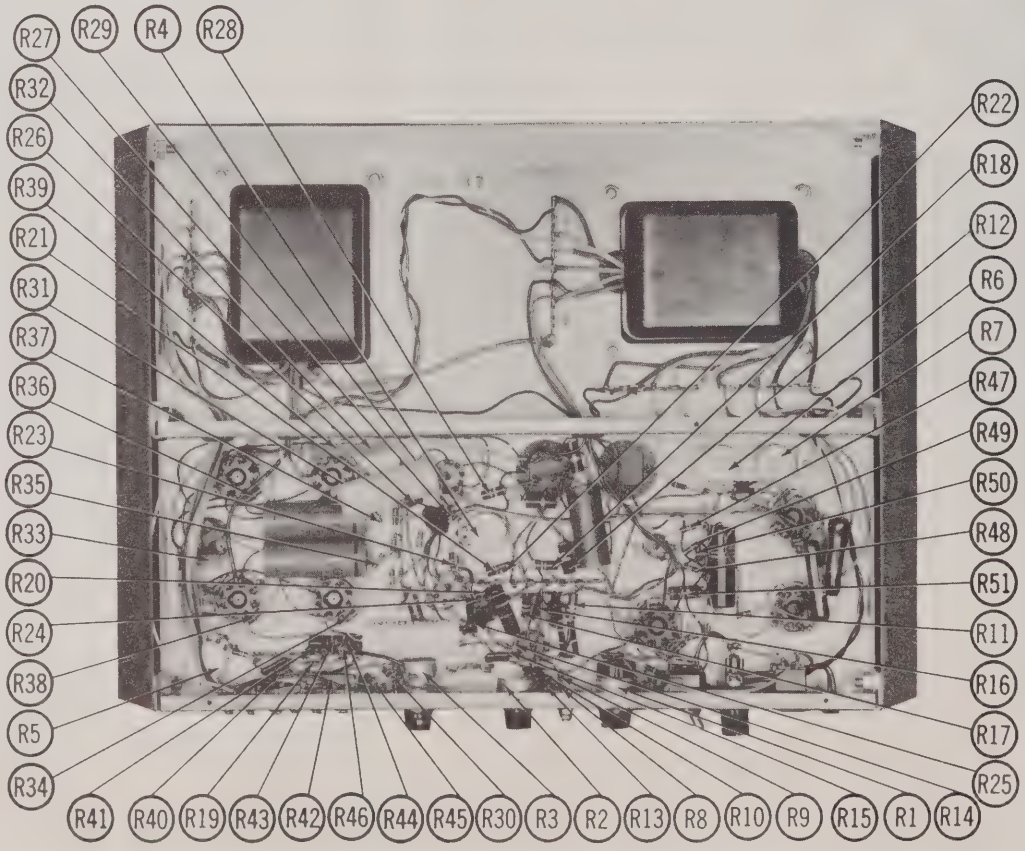
| | | |
|---|---|---|
| TRADE NAME | H. H. Scott Model 280 | |
| MANUFACTURER | Hermon Hosmer Scott, Inc., 385 Putnam Ave., Cambridge 39, Mass. | |
| TYPE SET | AC Operated Two Channel Audio Amplifier | |
| TUBES | ELEVEN | |
| POWER SUPPLY | 110-120 Volts AC-60 Cycles | RATING 1.62 Amp. @ 117 Volts AC (180 Watts) |

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1957 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America




**CHASSIS BOTTOM VIEW**




**CHASSIS BOTTOM VIEW**

# PARTS LIST AND DESCRIPTIONS

## TUBES (GENERAL ELECTRIC, SYLVANIA)

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | AF Amplifier | 12AX7 | |
| V2 | AF Amp. -Reg. Cont. | 12AX7 | |
| V3 | AF Amplifier - Power Output Cont. | 12AX7 | |
| V4 | Output | EL34 | Note 1 |
| V5 | Output | EL34 | Note 1 |
| V6 | Output | EL34 | Note 1 |
| V7 | Output | EL34 | Note 1 |
| V8 | Output Rect. Bias Rect. | 6AL5 | |
| V9 | Volt Regulator | 6BX7 | |
| V10 | Rectifier | 5U4GA | |
| V11 | Rectifier | 5U4GA | |

Note #1. Some version may use type 6CA7.

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA H.H. SCOTT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1 | 20 | 600 | | GL600V16 | BRHV620 | TC-92 [ TC-92 | | | R2442 * |
| C2A | ■ 20 | 475 | | AFH4-19-20 | DO179.5 | FP475 | TMQ-12 | Q-075 [ MT-4720 | TVL-4834 |
| B | ▪ 20 | 475 | | | | | | | |
| C | ▲ 20 | 475 | | | | | | | |
| D | 20 | 475 | | | | | | | |
| C3 | 8 | 450 | | PRS450V8 | BR845 | TC71 | TD-8-450 | MT-4508 | TVA-1704 |
| C4 | 50 | 100 | | PRS150V50 | BR5015 | TC49 | TD-50-150 | MT-1550 | TVA-1414 |
| C5 | 50 | 100 | | PRS150V50 | BR5015 | TC49 | TD-50-150 | MT-1550 | TVA-1414 |
| C6 | 25 | 25 | | PRS25V25 | BBR25-25 | TC26 | TD-25-25 | MT-0225 | TVA-1205 |

* Non Catalog Item.

## FIXED CAPACITORS

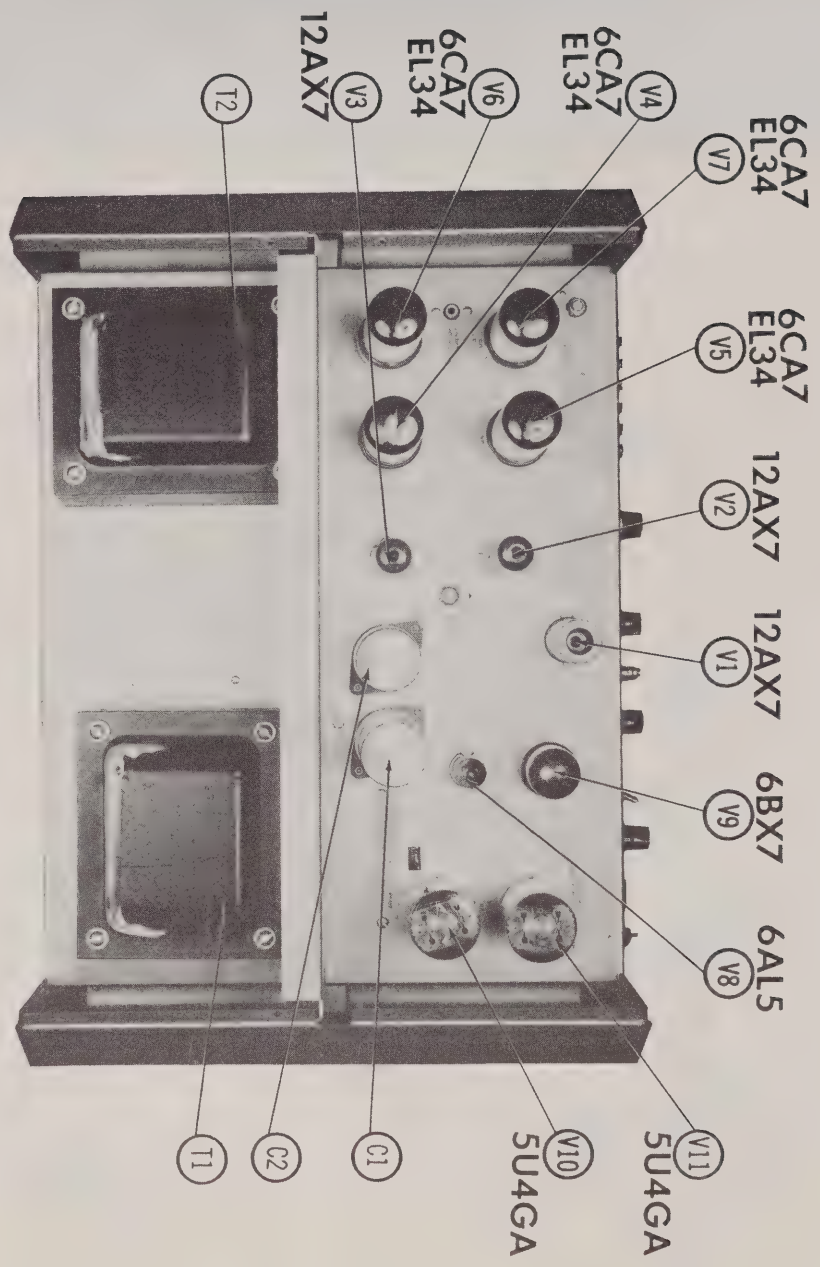
**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA H.H. SCOTT PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C7 | 33 | | | 1469-000033 | TCZ-33 | 22R5Q33 | ED-33 | ZT-5433 | MS-433 | 5% |
| C8 | .047 | 400 | | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C9 | 470 | | | 1467-00047 | DD-471 | 5W5T47 | ED-470 | UC-5347 | 1FM-347 | |
| C10 | 470 | | | 1467-00047 | DD-471 | 5W5T47 | ED-470 | UC-5347 | 1FM-347 | |
| C11 | .015 | 400 | | BPD-015 | DD16-153 | CUB6S15 | ED-015 | GEM-4115 | 4TM-S15 | |
| C12 | 8.2 | | | NPO-S18.2 | TCZ-8R2 | C10V82C | TCO-8.2 | | | |
| C13 | 470 | | | 1467-00047 | DD-471 | 5W5T47 | ED-470 | UC-5347 | 1FM-347 | |
| C14 | 10 | | | NPO-S10 | TCZ-10 | C10Q1C | TCO-10 | ZT-541 | 5TCC-Q1 | NPO |
| C15 | .25 | 600 | | P688N-25 | | CUB6P25 | | GEM-6025 | 6TM-P25 | |
| C16 | 680 | | | 1464-00068 | D6-681 | 1R5T68 | ED-680 | | MS-368 | 10% |
| C17 | 20000 | | | BPD-02 | DD-203 | BYB6S2 | ED-02 | | 5HK-S2 | |
| C18 | 10 | | | BPD-00001 | DD-100 | L10Q1 | ED-10 | UC-541 | 5GA-Q1 | |
| C19 | 820 | | | 1467-00082 | DD-821 | 1W5T82 | ED-820 | | 1FM-382 | |
| C20 | .25 | 600 | | P688N-25 | | CUB6P25 | | GEM-6025 | 6TM-P25 | |
| C21 | 820 | | | 1467-00082 | DD-821 | 1W5T82 | ED-820 | | 1FM-382 | |
| C22 | .022 | 400 | | BPD-02 | DD-203 | CUB4S22 | ED-02 | GEM-4122 | 4TM-S22 | |
| C23 | .015 | 400 | | BPD-015 | DD16-153 | CUB6S15 | ED-015 | GEM-4115 | 4TM-S15 | |
| C24 | 100 | | | 1469-0001 | DD-101 | 5W5T1 | ED-100 | UC-531 | 1FM-31 | |
| C25 | .33 | 200 | | P288N-33 | | | | GEM-2033 | | |
| C26 | .0047 | 400 | | BPD-0047 | D6-472 | CUB6D47 | GP-4700 | GEM-6247 | 6TM-D47 | |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA H.H. SCOTT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 4000Ω | 1/2 | RCV-4000-3SW | B-12 | | Q17-114 | | Dynamic Power Monitor |
| B | Shaft | | | Not Req. | | Not Req. | | |
| C | Switch | | | KB-1 | | 76-1 | | |
| R2A | 100K | 1/2 | RCV-100K-3S | B-40 | A47-100K-S | Q11-128 | U41 | Input Level |
| B | Shaft | | | Not Req. | RS-2 | PQ | Not Req. | |
| R3A | 500Ω | 1/2 | RCVD-500-3 | | | B11-103 | | Damping Factor |
| B | 500Ω | 1/2 | | | | M11-103 | | |
| R4A | 100K | 1/2 | RCV-100K-3S | B-40 | A47-100K-S | Q11-128 | U41 | Balance |
| B | Shaft | | | Not Req. | RS-2 | PQ | Not Req. | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## CONTROLS (cont)

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | H. H. SCOTT PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R5A | 500Ω | ½ | RVC-500-S | AB-4 | A47-500-S | Q11-103 | U2 | Hum Balance |
| B | Shaft | | | AK-1 | FKS-1/4 | RQ | Not Req. | |
| R6A | 100K | ½ | RCV-100K-3S | B-40 | A47-100K-S | Q11-128 | U41 | Screen Overload |
| B | Shaft | | | Not Req. | RS-2 | PQ | Not Req. | |
| R7A | 100K | ½ | RCV-100K-3S | B-40 | A47-100K-S | Q11-128 | U41 | Cathode Bias |
| B | Shaft | | | Not Req. | RS-2 | PQ | Not Req. | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | H. H. SCOTT PART No. | IRC PART No. | |
| R8 | 470K | | | BTS-470K | |
| R9 | 100K | | | BTS-100K | |
| R10 | 10K | | | BTS-10K | |
| R11 | 270K | 1 | | BTA-270K | |
| R12 | 100K | 2 | | BTB-100K | |
| R13 | 4700Ω | | | BTS-4700 | |
| R14 | 150K | | | BTS-150K | |
| R15 | 3300Ω | | | BTS-3300 | |
| R16 | 2.2Meg | | | BTS-2.2Meg | |
| R17 | 100K | 1 | | BTA-100K | |
| R18 | 47K | 1 | | BTA-47K | |
| R19 | 1500Ω | | | BTS-1500 | |
| R20 | 220K | | | BTS-220K | |
| R21 | 1.8Meg | | | BTS-1.8Meg | |
| R22 | 100K | 1 | | BTA-100K | |
| R23 | 270K | | | BTS-270K | |
| R24 | 3300Ω | | | BTS-3300 | |
| R25 | 1800Ω | | | BTS-1800 | |
| R26 | 2.2Meg | | | BTS-2.2Meg | |
| R27 | 270K | | | BTS-270K | |
| R28 | 100K | 1 | | BTA-100K | |
| R29 | 1200Ω | | | BTS-1200 | |
| R30 | 390Ω | | | BTS-390 | |
| R31 | 1000Ω | | | BTS-1000 | |
| R32 | 750Ω | 4 | | PW4-750 | |
| R33 | 33Ω | 4 | | | |
| R34 | 1000Ω | | | BTS-1000 | |
| R35 | 56K | | | BTS-56K | |
| R36 | 1000Ω | | | BTS-1000 | |
| R37 | 56K | | | BTS-56K | |
| R38 | 1000Ω | | | BTS-1000 | |
| R39 | 750Ω | 4 | | PW4-750 | |
| R40 | 560Ω | | | BTS-560 | |
| R41 | 10K | | | BTS-10K | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | H. H. SCOTT PART No. | IRC PART No. | |
| R42 | .3Ω | 5 | | | |
| R43 | 330Ω | | | BTS-330 | |
| R44 | 180Ω | | | BTS-180 | |
| R45 | 470Ω | | | BTS-470 | |
| R46 | 330Ω | | | BTS-330 | |
| R47 | 120K | | | BTS-120K | |
| R48 | 47K | | | BTS-47K | |
| R49 | 1.5Meg | | | BTS-1.5Meg | |
| R50 | 2.2Meg | | | BTS-2.2Meg | |
| R51 | 100K | 2 | | BTB-100K | |
| R52 | 180Ω | | | BTS-180 | |
| R53 | 10K | | | BTS-10K | |
| R54 | 2200Ω | | | BTS-2200 | |
| R55 | 470K | | | BTS-470K | |
| R56 | 68K | | | BTS-68K | |
| R57 | 680K | | | BTS-680K | |
| R58 | 220K | | | BTS-220K | |
| R59 | 100K | | | BTS-100K | |
| R60 | 1.5Meg | | | BTS-1.5Meg | |
| R61 | 1800Ω | | | BTS-1800 | |
| R62 | 150K | | | BTS-150K | |
| R63 | 4700Ω | | | BTS-4700 | |
| R64 | 22K | | | BTS-22K | |
| R65 | 470K | | | BTS-470K | |
| R66 | 33K | | | BTS-33K | |
| R67 | 4.7Meg | | | BTS-4.7Meg | |
| R68 | 4.7Meg | | | BTS-4.7Meg | |
| R69 | 1.2Meg | | | BTS-1.2Meg | |
| R70 | 1.2Meg | | | BTS-1.2Meg | |
| R71 | 33Ω | 10 | | | |
| R72 | 33Ω | 10 | | | |
| R73 | 3.3Ω 5% | 1 | | | |
| R74 | 2200Ω | 2 | | BTB-2200 | |
| R75 | 2200Ω | 2 | | BTB-2200 | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | H. H. SCOTT PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| T1 | 117VAC @ 1.62A | 860VCT @ .140A | 10VCT @ 3A | 6.3VAC @ 1.5A | TR-30-4 | | | | | |
| | | | SEC. 4 | SEC. 5 | | | | | | |
| | | | 35V @ .0018A | 12.6VCT @ 3.5A | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

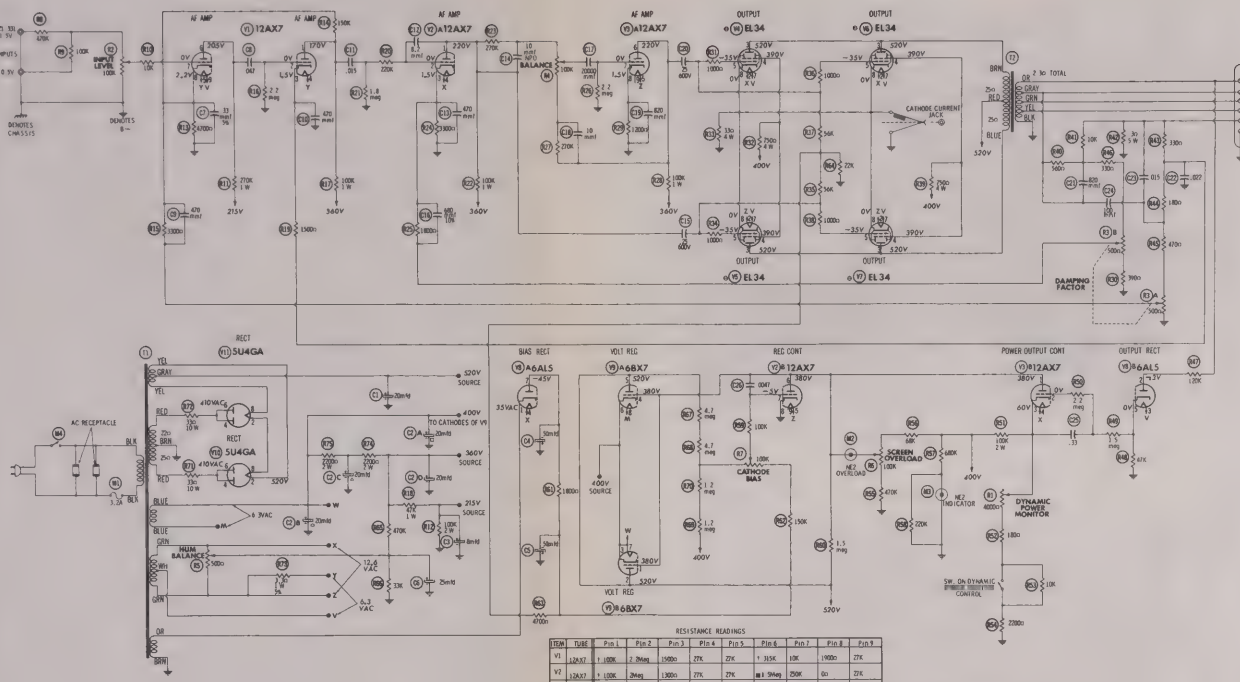
| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | H. H. SCOTT PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 3400Ω CT | 70V tap @ 16Ω, 8Ω, 4Ω | TRA-30-3 | | | | | | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | H. H. SCOTT PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M1 | MDL | 3.2A | | | 31303.2 (3AG 3.2A) | 342003 | MDL | HKP |

## MISCELLANEOUS

| ITEM No. | PART NAME | H. H. SCOTT PART No. | NOTES |
|---|---|---|---|
| M2 | Lamp | NE-2 | Neon-Screen Overload |
| M3 | Lamp | NE-2 | Neon-Indicator |
| M4 | Switch | | AC On-Off Switch |




● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | ↑ 100K | 2.3Meg | 1500Ω | 27K | 27K | ↑ 315K | 10K | 1900Ω | 27K |
| V2 | 12AX7 | ↑ 100K | 2Meg | 1300Ω | 27K | 27K | ■↑ 5Meg | 250K | 0Ω | 27K |
| V3 | 12AX7 | ■↓ 5Meg | 3.7Meg | 15K | 27K | 27K | ↑ 100K | 2.2Meg | 1200Ω | 27K |
| V4 | EL34 | 0Ω | 27K | ↑ 25Ω | ↑ 750Ω | 80K | TP | 27K | 0Ω | |
| V5 | EL34 | 0Ω | 27K | ↑ 25Ω | ↑ 750Ω | 80K | TP | 27K | 0Ω | |
| V6 | EL34 | 0Ω | 27K | ↑ 25Ω | ↑ 750Ω | 80K | TP | 27K | 0Ω | |
| V7 | EL34 | 0Ω | 27K | ↑ 25Ω | ↑ 750Ω | 80K | TP | 27K | 0Ω | |
| V8 | 6AL5 | 9Ω | 120K | 27K | 27K | 47K | NC | 28K | | |
| V9 | 6BX7 | ■↓ 5Meg | ■0Ω | ↑ 0Ω | ■↓ 5Meg | ■0Ω | ↑ 0Ω | 40K | 40K | |
| V10 | 5U4GA | TP | 25K (MIN) | NC | 58Ω | TP | 58Ω | TP | 25K (MIN) | |
| V11 | 5U4GA | TP | 25K (MIN) | TP | 35Ω | TP | 35Ω | NC | 25K (MIN) | |

■ MEASURED FROM PIN 2 OF V11
↑ MEASURED FROM PIN 3 OF V9
TP THE POINT
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings
6. All controls at minimum, proper output load connected

PHOTOFACT* Folder

*TRADE MARK

# HOFFMAN MODELS B3151, U, B3214, U, M3151, U, M3214, U, P3214, U, SP3151, U, SP3161, U, W3214, U (Ch. 324, U)

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MODEL SP3161U (Ch. 324U)

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DENVER, COLORADO

HOFFMAN MODELS B3151, U, B3214, U, M3151, U, M3214, U, P3214, U, SP3151, U, SP3161, U, W3214, U (Ch. 324, U)

| TRADE NAME | Hoffman | MODELS | CHASSIS |
|---|---|---|---|
| | | B3151, B3214, M3151, M3214, P3214, SP3151, SP3161, W3214 ..... | 324 |
| | | B3151U, B3214U, M3151U, M3214U, P3214U, SP3151U, SP3161U, W3214U ..... | 324U |
| MANUFACTURER | Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif. | | |
| TYPE SET | Television Receiver | | |
| TUBES | Twenty | | |
| POWER SUPPLY | 110-120 Volts AC, 60 Cycle | RATING 205 Watts., 1.7 Amp. @ 117 Volts AC | |
| TUNING RANGE | Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) | | |

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DATE 10-57 SET 373 FOLDER 8

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MODEL SP3161U (Ch. 324U)

## DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type control knobs from the front.
2. Remove 7 wood screws and the rear cover.
3. Remove the picture tube socket, yoke plug, HV lead, antenna terminal leads and 2 speaker leads.
4. Remove 1 wood screw from the upper rear chassis brace.
5. Remove 2 chassis bolts from the bottom.
6. Remove the chassis.
7. Remove 6 wood screws and 2 speakers.

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| MODELS | CHASSIS |
|---|---|
| B3151, B3214, M3151, M3214, P3214, SP3151, SP3161, W3214 | 324 |
| B3151U, B3214U, M3151U, M3214U, P3214U, SP3151U, SP3161U, W3214U | 324U |

## SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 8 push-on type control knobs from the front. Remove 4 wood screws and the escutcheon. Remove the safety glass.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A3) located on top of chassis.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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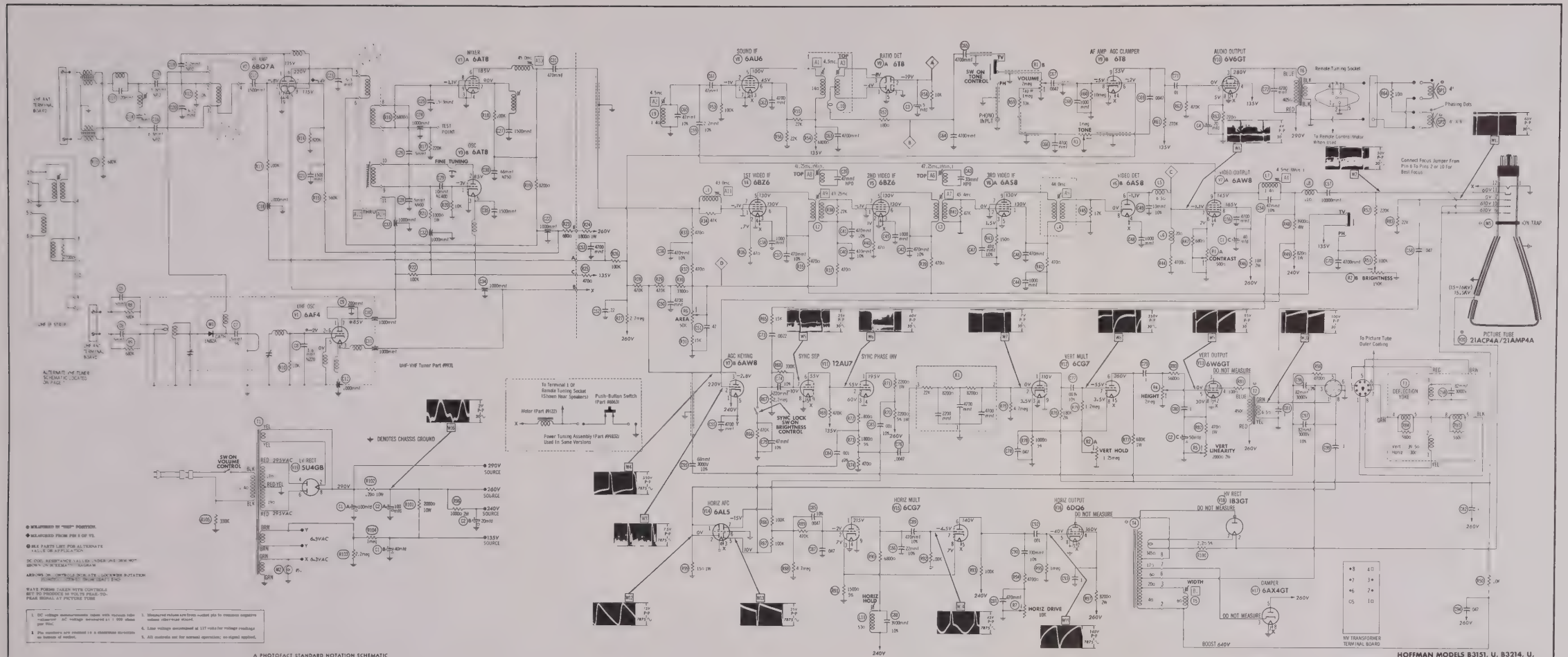


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**HOFFMAN MODELS B3151, U, B3214, U, M3151, U, M3214, U, P3214, U, SP3151, U, SP3161, U, W3214, U (Ch. 324, U)**

# TUBE PLACEMENT CHART

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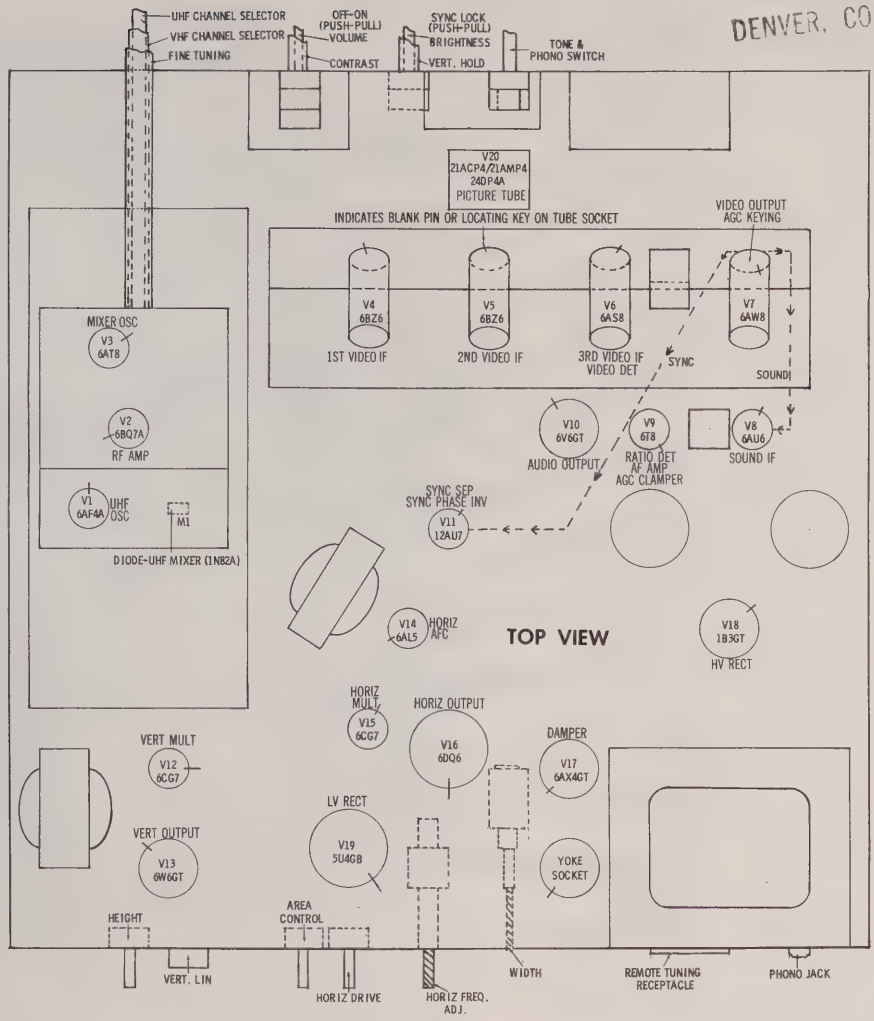



# TUBE FAILURE CHECK CHART

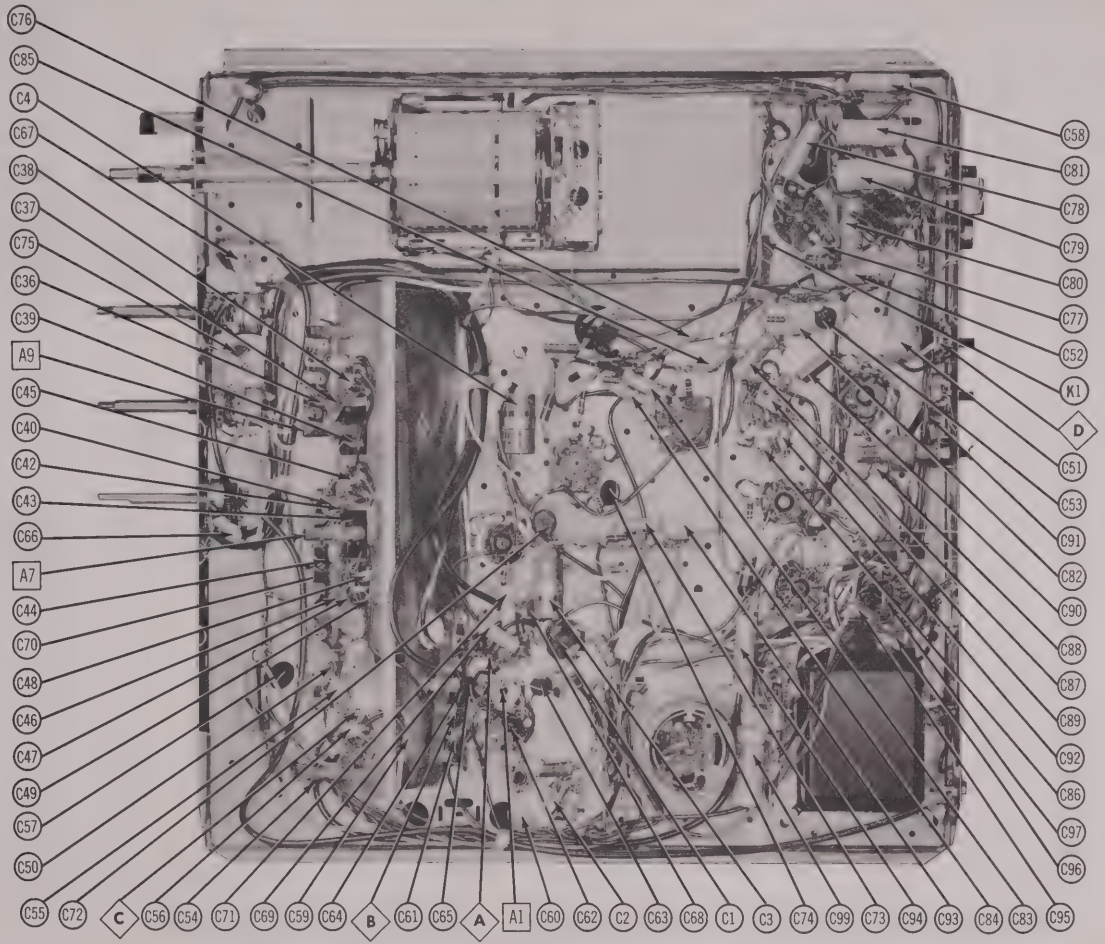
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, V7
No pic, no sound, has snow - V2, V3, (V1 UHF only)
No pic, has sound, has raster - V7, V20
Has pic, no sound - V8, V9, V10
Overloaded picture - V7, V9

SYNC FAILURE
No vert. sync - V11
No horiz. sync - V11, V14
No vert. or horiz. sync - V11

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V18
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17
Vert. off freq. - V12
Horiz. off freq. - V15




CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

# ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Do not remove the horizontal oscillator tube to disable the high voltage.
The high voltage lead should be securely taped and kept away from the chassis.

**SOUND IF ALIGNMENT**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .005MFD | High side to pin 7 (grid) of 6AW8 (V7). Low side to chassis. | 4.5MC (Unmod) | Any non-interfering channel | DC probe thru 10K to point (A). Common to chassis. | A1, A2 | Adjust for maximum deflection. Keep generator output level at point which produces approximately 4 volts on VTVM. |
| 2. | " | " | " | " | Move common lead to point (B). | A3 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

**4.5MC TRAP ALIGNMENT**

Turn the contrast control fully clockwise.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 3. | .005MFD | High side to pin 7 (grid) of 6AW8 (V7). Low side to chassis. | 4.5MC (Unmod) | Any non-interfering channel | DC probe thru detector (Fig. 1) to pin 11 (cathode) of picture tube. | A4 | Adjust for MINIMUM deflection. |

**VIDEO IF ALIGNMENT**

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 4. | Direct | High side to ungrounded tube shiled floating over mixer-oscillator tube (V3). Low side to chassis. | 44.0MC (Unmod) | Any non-interfering channel | DC probe thru 10K to point (C). Common to chassis. | A5 | Adjust for maximum deflection. |
| 5. | " | " | 47.25MC | " | " | A6 | Adjust for MINIMUM deflection. |
| 6. | " | " | 45.4MC | " | " | A7 | Adjust for maximum deflection. |
| 7. | " | " | 41.25MC | " | " | A8 | Adjust for MINIMUM deflection. |
| 8. | " | " | 43.25MC | " | " | A9 | Adjust for maximum deflection. |
| 9. | " | " | 43.0MC | " | " | A10 | Adjust for MINIMUM deflection. |
| 10. | " | " | " | " | " | A11 | Adjust for maximum deflection. |
| 11. | " | " | 45.0MC | " | " | A10 | Adjust for maximum deflection. |

**OVERALL VIDEO IF RESPONSE CHECK**

Connect a .001MFD capacitor across the input terminals of the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 12. | Direct | High side to ungrounded tube shield floating over mixer-oscillator tube (V3). Low side to chassis. | 44.0MC (10MC Swp) | 42.25MC 45.75MC | Any non-interfering channel | Vert. Amp. thru 10K to point (C). Low side to chassis. | | Check for response similar to Fig. 2 with markers as indicated. If necessary, make SLIGHT readjustment of A5 thru A11 for desired response. |

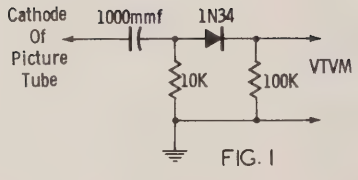


FIG. 1

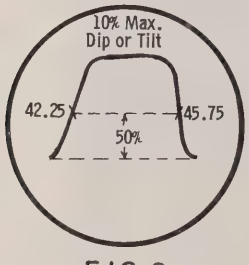


FIG. 2

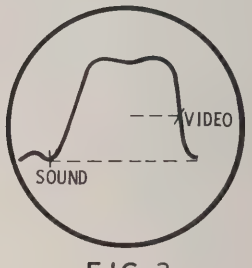


FIG. 3

# ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (D). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

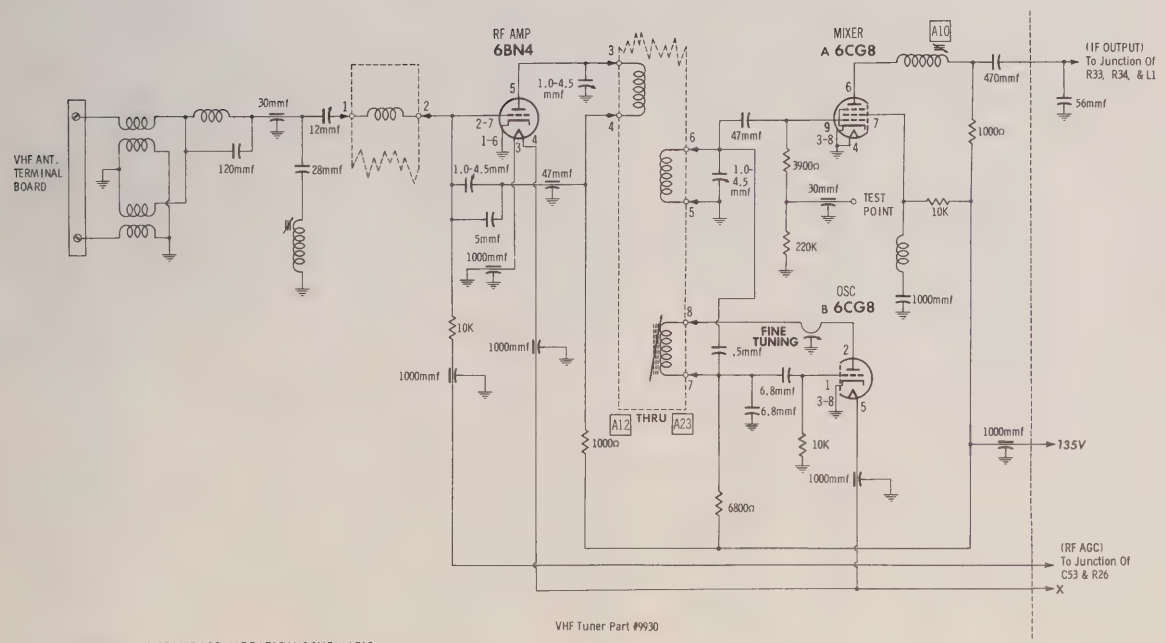
| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 13. | Two 120Ω Carbon Resistors | Across antenna terminals with 120Ω in each lead. | 213MC (10MC Swp) | 211.25MC 215.75MC | 13 | Vert. Amp. thru 47K to point (C). Low side to chassis. | A12 | Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%. |
| | | | 207MC (10MC Swp) | 205.25MC 209.75MC | 12 | | A13 | |
| | | | 201MC (10MC Swp) | 199.25MC 203.75MC | 11 | | A14 | |
| | | | 195MC (10MC Swp) | 193.25MC 197.75MC | 10 | | A15 | |
| | | | 189MC (10MC Swp) | 187.25MC 191.75MC | 9 | | A16 | |
| | | | 183MC (10MC Swp) | 181.25MC 185.75MC | 8 | | A17 | |
| | | | 177MC (10MC Swp) | 175.25MC 179.75MC | 7 | | A18 | |
| | | | 85MC (10MC Swp) | 83.25MC 87.75MC | 6 | | A19 | |
| | | | 79MC (10MC Swp) | 77.25MC 81.75MC | 5 | | A20 | |
| | | | 69MC (10MC Swp) | 67.25MC 71.75MC | 4 | | A21 | |
| | | | 63MC (10MC Swp) | 61.25MC 65.75MC | 3 | | A22 | |
| | | | 57MC (10MC Swp) | 55.25MC 59.75MC | 2 | | A23 | |

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.




VHF Tuner Part #9930

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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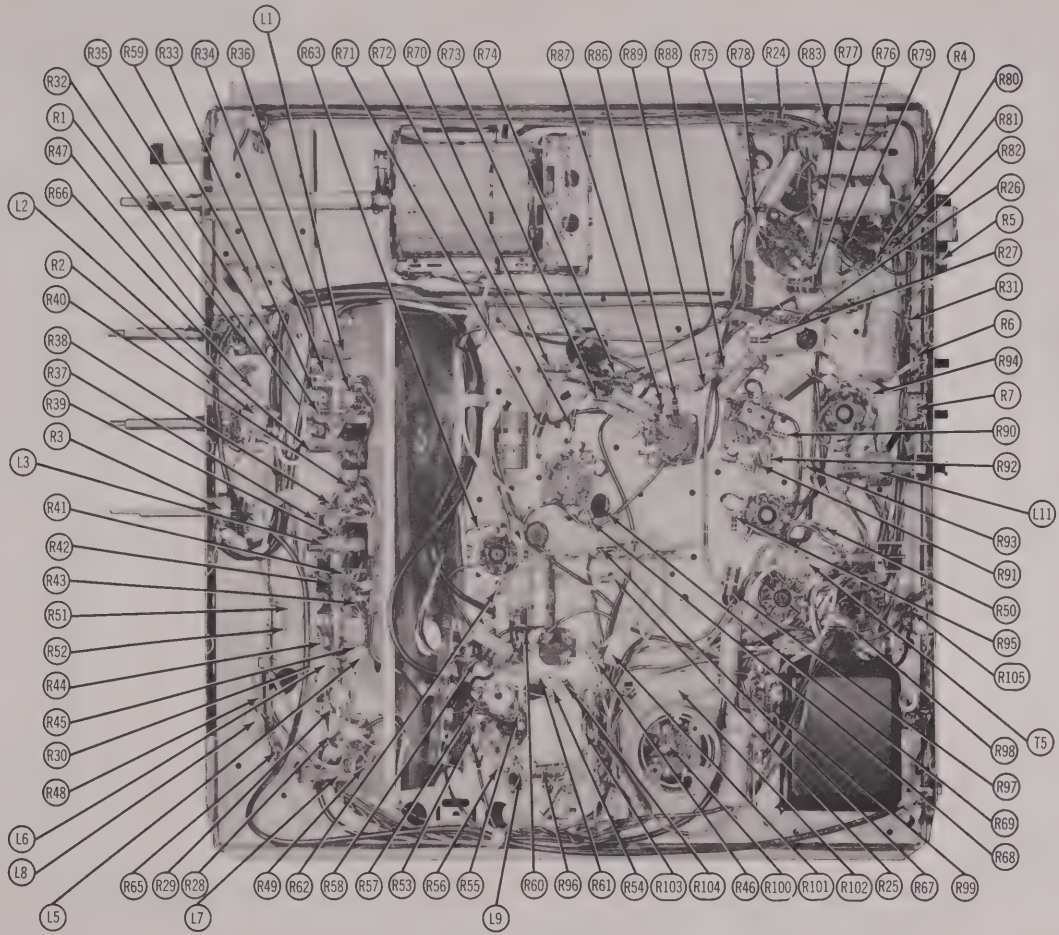
## ALTERNATE TUNER SCHEMATIC

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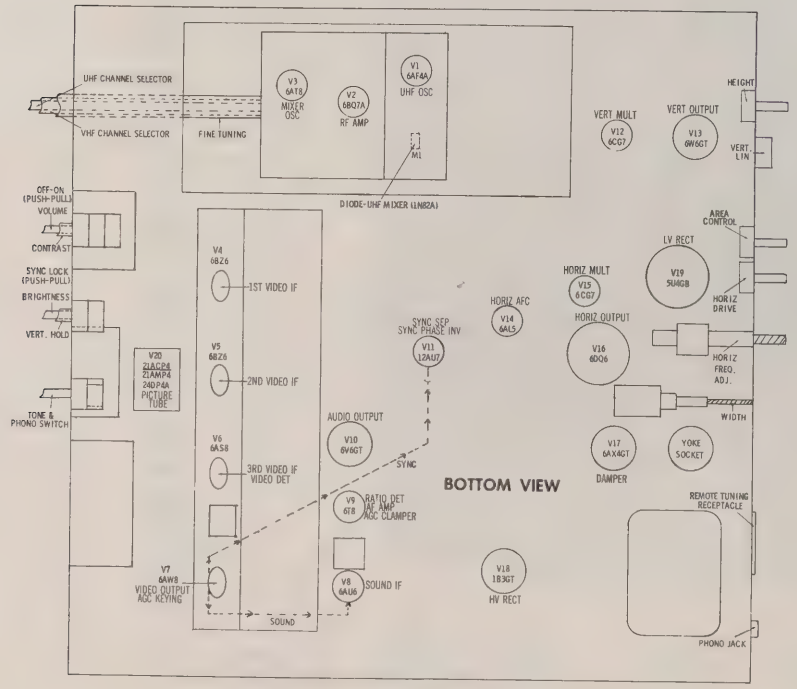
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

# RESISTANCE MEASUREMENTS

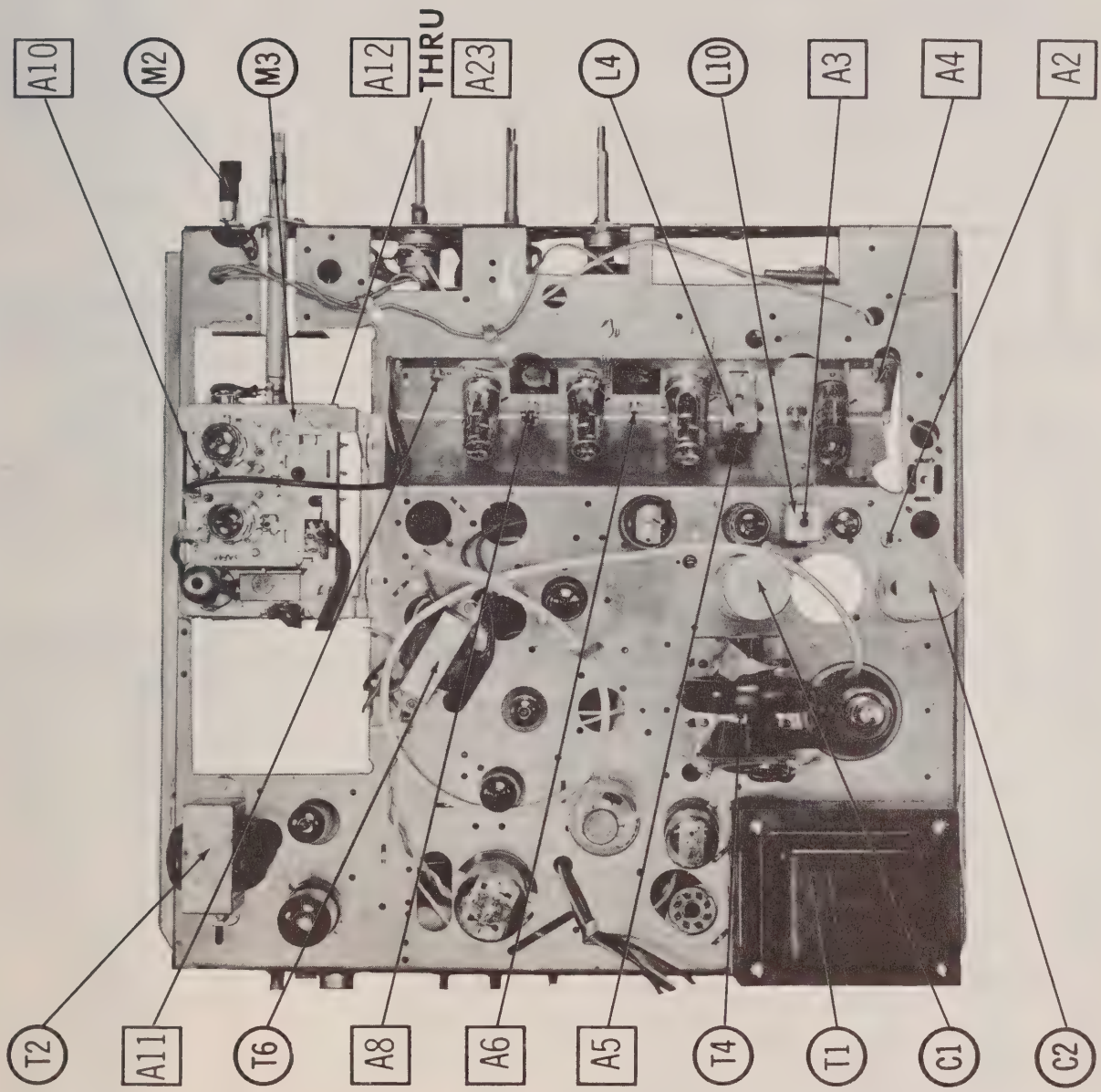
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 6AF4 | † *5300Ω | 10K | .1Ω | 0Ω | .1Ω | 10K | † *5300Ω | | |
| V2 | 6BQ7A | INF | 800K | 0Ω | 0Ω | .1Ω | † 2800Ω | 350K | INF | 0Ω |
| V3 | 6AT8 | 10K | † 5300Ω | 0Ω | 0Ω | .1Ω | † 11K | † 110K | 0Ω | 220K |
| V4 | 6BZ6 | • 50K | 47Ω | .1Ω | 0Ω | † 2600Ω | † 2600Ω | 0Ω | | |
| V5 | 6BZ6 | • 50K | 47Ω | .1Ω | 0Ω | † 2600Ω | † 2600Ω | 0Ω | | |
| V6 | 6AS8 | † 2600Ω | .1Ω | 150Ω | .1Ω | 0Ω | 4700Ω | 0Ω | .1Ω . | † 2600Ω |
| V7 | 6AW8 | † 1100Ω | † 1900Ω | 400K | 700K | 700K | • 80Ω | 4700Ω | † 18K | † 5800Ω |
| V8 | 6AU6 | 100K | 0Ω | .1Ω | 0Ω | † 7500Ω | † 22K | 0Ω | | |
| V9 | 6T8 | INF | 10K | INF | .1Ω | 0Ω | 650K | 0Ω | 10Meg | † 270K |
| V10 | 6V6GT | NC | 0Ω | † 405Ω | † 2100Ω | 470K | NC | .1Ω | 270Ω | |
| V11 | 12AU7 | † 4500Ω | † 470K | 4000Ω | 0Ω | 0Ω | † 470K | 2.5Meg | 0Ω | .1Ω |
| V12 | 6CG7 | ‡190K | 4.7Meg | 1000Ω | 0Ω | .1Ω | ‡690K | • 1.7Meg | 1000Ω | 0Ω |
| V13 | 6W6GT | NC | .1Ω | † 570Ω | † 670Ω | • 1Meg | TP | 0Ω | • 1100Ω | |
| V14 | 6AL5 | 15Ω | 15Ω | .1Ω | 0Ω | 4.8Meg | 0Ω | 4.8Meg | | |
| V15 | 6CG7 | † 7000Ω | 5.1Meg | 1500Ω | 0Ω | .1Ω | † 100K | 100K | 1500Ω | 0Ω |
| V16 | 6DQ6 | TP | .1Ω | NC | † 8300Ω | 1Meg | TP | 0Ω | 0Ω | TOP CAP ‡17Ω |
| V17 | 6AX4GT | NC | TP | INF | NC | † 120Ω | NC | 0Ω | .1Ω | |
| V18 | 1B3GT | PINS 1 THRU 8 HAVE INFINITE RESISTANCE | | | | | | | | TOP CAP ‡362Ω |
| V19 | 5U4GB | NC | 30K | NC | 17Ω | TP | 19Ω | NC | 30K | |
| V20 | 21ACP4A 21AMP4A | 0Ω | 22K | PIN 6 ‡10K | PIN 10 ‡10K | PIN 11 335K | PIN 12 .1Ω | | | |

† MEASURED FROM PIN 8 OF V19.
‡ MEASURED FROM PIN 3 OF V17.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
* MEASURED IN "UHF" POSITION.
NC NO CONNECTION.
TP TIE POINT.




# TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO




CHASSIS TOP VIEW

HOFFMAN MODELS B3151, U, B3214, U, M3151, U, M3214, U, P3214, U, SP3151, U, SP3161, U, W3214, U (Ch. 324, U)

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | UHF Oscillator | 6AF4 | |
| V2 | RF Amplifier | 6BQ7A | |
| V3 | Mixer--Oscillator | 6AT8 | |
| V4 | 1st. Video IF Amp | 6BZ6 | |
| V5 | 2nd Video IF Amp | 6BZ6 | |
| V6 | 3rd Video IF Amp - Video Det | 6AS6 | |
| V7 | Video Output-AGC Keying | 6AW8 | |
| V8 | 2nd IF Amp - AGC Clamper | 6AU6 | |
| V9 | Ratio Det - AF Amp - AGC Clamper | 6T8 | |
| V10 | Audio Output | 6V6GT | |
| V11 | Sync Sep.-Sync Phase Inv. | 12AU7 | |
| V12 | Vert. Mult. | 6CG7 | |
| V13 | Vert. Output | 6W6GT | |
| V14 | Horiz. AFC | 6AL5 | |
| V15 | Horiz. Mult. | 6CG7 | |
| V16 | Horiz. Output | 6DQ6 | |
| V17 | Damper | 6AX4GT | |
| V18 | HV Rectifier | 1B3GT | |
| V19 | LV Rectifier | 5U4GB | |

## PICTURE TUBE

| ITEM No | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|
| | HOFFMAN PART No. | GENERAL ELECTRIC SYLVANIA | SYLVANIA PART No. | |
| V20 | 21ACP4A; 21AMP4A | 21ACP4A | 21ACP4A | 1 Aluminized |
| | 21AMP4A | 21ACP4A ⚠ | 21ACP4A ⚠ | 2 Silver screen '55 |
| | | 21ACP4 21AMP4 | 21ACP4 | |
| | 24DP4A | 24DP4A ⚠ | 24DP4 ⚠ | |
| | | 24DP4 | 24DP4 | |

## ELECTROLYTIC CAPACITORS

| ITEM No | RATING | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | HOFFMAN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | 100 | 350 | 4356A | AFH4-56-75 | | | | C-32.5 | P3419 * |
| B | 40 | 250 | | | | | | | |
| C | 40 | 350 | | | | | | | |
| C2A | 100 | 250 | 4355A | AFH4-56-65 | | | | C-130 | R3405 * |
| B | 80 | 350 | | | | | | MT-0550 | |
| C | 150 | 50 | | | | | | | |
| C3 | 5 | 50 | 4277A | PR350V5 | BBR5-50 | TC30 | TD-5-50 | MT-1506 | TVA-1303 |
| C4 | 20 | 50 | 4253A | PR350V20 | BBR30-150 | TC45 | TD-20-150 | MT-1520 | TVA-1410 |

* Non-catalog item.

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | HOFFMAN PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C5 | 5 | | | SI 5 | DD-050 | L3DY5 | ED-5 | UC-535 | 5GA-V5 | |
| C6 | 5 | | | SI 5 | DD-050 | L3DY5 | ED-5 | UC-535 | 5TCC-Q5 | 9% |
| C7 | 15 | | | NPO-SI 15 | TCZ-15 | C10Q15C | TCO-15 | | | M330 |
| C8 | 3.5 | | | | | | | | | |
| C9 | 300 | | | | | | | | 503C-D1 | |
| C10 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C11 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C12 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C13 | 120 | | | NPO-0012 | DD-12 | L3DQ2 | ED-120 | UC-5213 | 5GA-V12 | |
| C14 | 5 | | | SI 5 | DD-050 | L3DY5 | ED-5 | UC-535 | 5GA-V5 | |
| C15 | 6.8 | | | NPO-SI 6.8 | TCZ-6R8 | C10Y68C | TCO-6.8 | ZT-5568 | 5TCC-V68 | NPO |
| C16 | 6.8 | | | NPO-SI 6.8 | TCZ-6R8 | C10Y68C | TCO-6.8 | ZT-5568 | 5TCC-V68 | NPO |
| C17 | 1500 | | | DD-0015 | DD-152 | BYA10D15 | ED-0015 | DC5215 | 5HK-D15 | |
| C18 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C19 | 2.2 | | | NPO-SI 2.2 | TCZ-2R2 | C10V22C | TCO-2.2 | | 5TCC-V22 | NPO |
| C20 | 3.3 | | | | | | | | | |
| C21 | 1500 | | | DD-0015 | DD-152 | BYA10D15 | ED-0015 | DC5215 | 5HK-D15 | |
| C22 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C23 | 1000 | | | | | | 3135-D | CT5654 | | |
| C24 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C25 | 3.3 | | | | SI 3-3 | | | CT5654 | | |
| C26 | 5 | | | | TCZ-5 | | TCO- 5 | | | |
| C27 | 1500 | | | DD-0015 | DD-152 | BYA10D15 | ED-0015 | DC5215 | 5HK-D15 | |
| C28 | 1000 | | | | | | | | | N1000 |
| C29 | 10 | | | | N750-SI 68 | TCN-68 | C10Q68U | TC7-68 | | 5TCU-C68 | N750 |
| C31 | 470 | | | DD-00047 | DD-471 | BYA10D47 | ED-470 | UC-5347 | 5GA-V47 | |
| C32 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C33 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C34 | 1000 | | | EF-001 | MFT-1000 | | | | 503C-D1 | |
| C35 | 1500 | | | DD-0015 | DD-152 | BYA10D15 | ED-0015 | DC5215 | 5HK-D15 | |
| C36 | 470 | | 14009 | 1464-00047 | DC-470 | 5RS747 | ED-470 | | MS-347 | 10% |
| C37 | 470 | | 14009 | 1464-00047 | DC-470 | 5RS747 | ED-470 | | MS-347 | 10% |
| C38 | 1000 | | 14045 | DD-001 | DD-102 | BYA8DX | ED-1000 | DC521 | 5HK-DX | |
| C39 | 10 | | | NPO-SI 47 | TCZ-47 | C10Q47C | TCO-47 | | 5TCC-Q47 | NPO |
| C40 | 470 | | 14009 | 1464-00047 | DC-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C41 | 470 | | 14009 | 1464-00047 | DC-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C42 | 470 | | 14009 | 1464-00047 | DC-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C43 | 33 | | | NPO-SI 33 | TCZ-33 | C10Q33C | TCO-33 | ZT-5433 | 5TCC-Q33 | NPO |
| C44 | 1000 | | 14045 | DD-001 | DD-102 | BYA8DX | ED-1000 | DC521 | 5HK-DX | |
| C45 | 1000 | | 14045 | DD-001 | DD-102 | BYA8DX | ED-1000 | DC521 | 5HK-DX | |
| C46 | 470 | | 14009 | 1464-00047 | DC-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C47 | 470 | | 14009 | 1464-00047 | DC-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C48 | 1000 | | 14045 | BPI-001 | DD-102 | BYA8DX | ED-1000 | DC521 | 5HK-DX | |
| C49 | 10 | | 14058 | 1469-00001 | DC-100 | L3DQ | ED-10 | ET-541 | MS-11 | 10% |
| C50 | 4700 | | 4033 | DD-0047 | DD-472 | BYA10D47 | ED-0047 | UC-5347 | 5GA-D47 | |
| C51 | 22 | 200 | 4173 | P2BSN-47 | | CUB2P47 | | TTM-P47 | 5TM-P47 | |
| C52 | 22 | 200 | 4231 | P2BSN-22 | | CUB2P22 | | GEM-2022 | TTM-P22 | |
| C53 | 4700 | | 4035 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C54 | 47 | | 4007 | 1469-00047 | DC-470 | 22RS747 | ED-47 | | MS-447 | 10% |
| C55 | 4700 | | 4035 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C56 | 4700 | | 4035 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C57 | 10000 | | | DD-01 | DD-103 | BYA8DX | ED-01 | DC5I | 5HK-S1 | |
| C58 | .047 | 200 | 4147 | DD-0047 | DD-473 | CUB2M47 | | GEM-4147 | 2TM-M47 | |
| C59 | 2.2 | | 4089 | NPO-SI 2.2 | TCZ-2R2 | C7A8Y22C | TCO-2.2 | | 5TCC-V22 | 10% |
| C60 | 47 | | 4007 | 1469-00047 | DC-47 | 22RS47 | ED-47 | | MS-447 | 10% |
| C61 | 47 | | 4085 | DD-000047 | DD-470 | L3DQ47 | ED-47 | UC-5447 | 5GA-Q47 | |
| C62 | 4700 | | 4035 | DD-0047 | DD-473 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C63 | 4700 | | 4035 | DD-0047 | DD-473 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C64 | 4700 | | 4035 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C65 | 4700 | | 4035 | DD-0047 | DD-473 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C66 | 4700 | | 4018 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C67 | .047 | 200 | 4127 | DD-0047 | DD-473 | CUB2M47 | GP-4700 | GEM-4247 | 5TM-D47 | |
| C68 | .0047 | 300 | 14045 | DD-001 | DD-102 | BYA8DX | ED-1000 | DC521 | 5HK-DX | |
| C69 | .0047 | 300 | 4137 | DD-0047 | DD-472 | CUB5D47 | GP-4700 | GEM-4347 | 5TM-D47 | |
| C70 | .0047 | 300 | 4085 | DD-0047 | DD-472 | BYA10D47ED-0047 | | UC-5347 | 5GA-D47 | |
| C71 | .01 | 300 | 4143 | DD-01 | DD-103 | CUB4H | GP-10000 | GEM-4II | 4TM-S1 | |

## PARTS LIST AND DESCRIPTIONS

### CAPACITORS (cont)

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | HOFFMAN PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C73 | 4700 | | 4018 | BPD-0047 | DD-473 | BYA10D47 | ED-0047 | UC-5347 | 5GA-D47 | |
| C74 | .0033 | 400 | 4150 | BPD-0033 | DD-332 | CUB5D33 | GP-3300 | GEM-5333 | 5TM-D33 | |
| C75 | 330 | | 4084 | 1469-00033 | DD-331 | L1DT33 | ED-330 | | MS-333 | 10% |
| C76 | 47 | | 4007 | 1469-00047 | DC-470 | L1DQ47 | ED-47 | | MS-447 | 10% |
| C77 | .0047 | 300 | 4127 | DD-0047 | DD-472 | CUB5D47 | GP-4700 | GEM-5347 | 5TM-D47 | |
| C78 | .0039 | 400 | 4184 | 1464-0039 | | 1R5D39 | | GEM-4147 | 4TM-D47 | |
| C79 | .047 | 200 | 4147 | BPD-05 | DF-503 | CUB5M47 | | GEM-4147 | 5TM-P47 | |
| C79 | .1 | 600 | 4138 | P4S8N-1 | DF-104 | CUB4P1 | | GEM-601 | 5TM-P1 | |
| C80 | .1 | 200 | 4143 | P2S8N-1 | DF-104 | CUB3P1 | | GEM-301 | 3TM-P1 | |
| C81 | .1 | 400 | 4150 | P4S8N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C82 | .1 | 600 | 4138 | P6S8N-1 | DF-104 | CUB6P1 | | GEM-601 | 5TM-P1 | |
| C83 | .001 | 200 | 4176 | 1464-001 | | 1R5D1 | ED-1000 | MC3581 | MS-31 | 10% |
| C84 | .001 | 200 | 4175 | 1464-001 | | 1R5D1 | ED-1000 | MC3581 | MS-31 | 10% |
| C85 | .0047 | 200 | 4185 | 1464-0047 | | 1R5D47 | | | MS-347 | 10% |
| C86 | 22 | | 14008 | 1469-000023 | TCZ-23 | L1DQ22 | ED-23 | | MS-422 | 10% |
| C87 | .047 | 200 | 4147 | BPD-05 | DF-503 | CUB5M47 | | GEM-4147 | 5TM-P47 | |
| C88 | 3900 | | 4037 | 1464-0039 | | 1R5D39 | | | MS-339 | 10% |
| C89 | 470 | | 14009 | 1469-00047 | DE-471 | 5RS747 | ED-470 | | MS-347 | 10% |
| C90 | 330 | | 4010 | 1469-00033 | DE-331 | 5RS733 | ED-330 | | MS-333 | 10% |
| C91 | 470 | | | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C93 | .1 | 400 | 4176 | BPD-001 | DE-104 | CUB5E1 | ED-1000 | GEM-401 | 4TM-D1 | |
| C93 | 1 | 400 | 4150 | P4S8N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C94 | .047 | 600 | 4133 | BPD-05 | DF-503 | CUB5H47 | | GEM-6147 | 6TM-S47 | |
| C95 | 68 | | 3000 | 14043 | | | | | | 10% |
| C96 | 82 | | 3000 | 14408 | | | | | | 10% |
| C97 | 82 | | 3000 | 14409 | | | | | | 10% |
| C98 | 82 | | 3000 | | | DD80-030 | | | | |
| C99 | 1 | | 600 | 4126 | | DF-104 | CUB6P1 | | GEM-601 | 6TM-P1 |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | HOFFMAN PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 500Ω | ½ | 4186A | J7-1 | RTV-619 | | UK689 | Contrast |
| B | 2MEG | ½ | | RS-73 | Not Req. | | Not Req. | Volume-Tap ⑨ 1MEG |
| C | Switch | | | KS-1 | Not Req. | | Not Req. | |
| R2A | 1.25MEG | ½ | 4187A | | | | | Vert. Hold |
| B | 150K | ½ | | | | | | Brightness |
| C | Switch | ½ | | | | | | Sync Lock |
| R3A | 1MEG | ½ | 4188A | | | | | Tone |
| B | Switch | ½ | | | | | | Phono-TV |
| R4A | 2MEG | ½ | 4965 | 9X-75 | A47-2MEG-S | QH-139 | TA301 | Height |
| B | Shaft | | | Not Req. | FKB-1/4 | Not Req. | Not Req. | |
| R5 | 30000Ω | 2 | 4954A | 9W-302 | RV-3000 | | FL-2.5K | Vert. Lin.--Wire wound |
| R6A | 50K | ½ | 4964 | 9X-51 | A47-50K-S | QH-133 | TA841 | Area |
| B | Shaft | | | Not Req. | FKB-1/4 | Not Req. | Not Req. | |
| R7A | 10K | ½ | 4903A | AB-14 | A47-10K-S | RH-118 | TA441 | Horiz. Drive |
| B | Shaft | | | AK-14 | FKB-1/4 | TMD-K31 | Not Req. | |

## RESISTORS

**All wattages 1/2 watt, or less, unless otherwise listed.**

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | HOFFMAN PART No. | IRC PART No. | |
| R8 | 680K | | | BTS-680K | |
| R9 | 330K | | | BTS-330K | |
| R10 | 10K | | | BTS-10K | |
| R11 | 680K | | | BTS-680K | |
| R12 | 10K | | | BTS-10K | |
| R13 | 100K | | | BTS-100K | |
| R14 | 820K | | | BTS-820K | |
| R15 | 560K | | | BTS-560K | |
| R16 | 680Ω | | | BTS-680Ω | |
| R17 | 220K | | | BTS-220K | |
| R18 | 100K | | | BTS-100K | |
| R19 | 8200Ω | | | BTS-8200 | |
| R20 | 10K | | | BTS-10K | |
| R21 | 3300Ω | 1 | | BTA-3300 | |
| R22 | 100K | | | BTS-100K | |
| R23 | 680Ω | | | BTS-680 | |
| R24 | 1800Ω | 1 | 24518 | BTA-1800 | |
| R25 | 470Ω | | 4984 | BTS-470 | |
| R26 | 100K | | 4971 | | |
| R27 | 2.7MEG | | 34830 | | |
| R28 | 470K | | 4952 | | |
| R29 | 470K | | 4622 | | |
| R30 | 3300Ω | | 4007 | | |
| R31 | 15K | | 4619 | BTS-15K | |
| R32 | 470Ω | | 4984 | | |
| R33 | 470Ω | | 4984 | | |
| R34 | 47K | | 4559 | | |
| R35 | 470Ω | | 4984 | BTS-470 | |
| R36 | 470Ω | | 4639 | BTS-470 | |
| R37 | 470Ω | | 4984 | BTS-470 | |
| R38 | 22K | | 4638 | | |
| R39 | 470Ω | | 4984 | BTS-470 | |
| R40 | 47Ω | | 4639 | BTS-47 | |
| R41 | 47K | | 4559 | BTS-47K | |
| R42 | 470Ω | | 4984 | | |
| R43 | 150Ω | | 4616 | BTS-150 | |
| R44 | 4700Ω | | 4578 | BTS-4700 | |
| R45 | 12K | | 4645 | BTS-12K | |
| R46 | 18K | 2 | 4631 | BTS-18K | |
| R47 | 680Ω | | 14677 | BTS-680 | |
| R48 | 3300Ω | 4 | 44614 | PW-T-3300 | |
| R49 | 820Ω | 1 | 4588 | BTA-820 | |
| R50 | 10K | | 4597 | BTS-10K | |
| R51 | 100K | | 4971 | BTS-100K | |
| R52 | 220K | | | BTS-220K | |
| R53 | 100K | | 4816 | BTS-100K | |
| R54 | 5600Ω | | 4557 | BTS-5600 | |
| R55 | 22K | | | BTS-22K | |
| R56 | 22K | | | BTS-22K | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | HOFFMAN PART No. | IRC PART No. | |
| R57 | 180Ω | | 4597 | BTS-180 | |
| R58 | 10K | | 4597 | BTS-10K | |
| R59 | 33K | | 4586 | BTS-33K | |
| R60 | 10MEG | | 4605 | BTS-10MEG | |
| R61 | 270K | | 4603 | BTS-270K | |
| R62 | 470K | | 4623 | BTS-470K | |
| R63 | 270Ω | | 4603 | BTS-270 | |
| R64 | 10Ω | | | BTS-10 | |
| R65 | 15K | | 4619 | BTS-15K | |
| R66 | 470K | | 4623 | BTS-470K | |
| R67 | 2.2MEG | | 4606 | BTS-2.2MEG | |
| R68 | 330K | | 34581 | BTS-330K | |
| R69 | 47Ω | | 4623 | BTS-470K | |
| R70 | 2200Ω 5% | 1 | 34528 | BTA-2200 5% | |
| R71 | 2200Ω | 1 | 4595 | BTA-2200 | |
| R72 | 1800Ω | | 4640 | BTS-1800 | |
| R73 | 1800Ω 5% | | 24517 | BTS-1800 5% | |
| R74 | 470Ω | | 4636 | BTS-470 | |
| R75 | 4.7MEG | | 4644 | BTS-4.7MEG | |
| R76 | 180K | 3 | 34509 | BTS-180K | |
| R77 | 680K | 1 | 34571 | BTA-680K | |
| R78 | 10000 5% | | 14495 | BTS-10000 5% | |
| R79 | 2.2MEG | | 34583 | BTS-2.2MEG | |
| R80 | 56000 | | 4629 | BTS-5600 | |
| R81 | 100Ω | | 4566 | BTS-100 | |
| R82 | 470Ω | 1 | 4531 | BTA-470 | |
| R83 | 22K | | 4503 | BTS-22K | |
| R84 | 560Ω | | | | |
| R85 | 1MEG | | | | |
| R86 | 100K | | 4571 | | |
| R87 | 100K | | 4571 | | |
| R88 | 4.7MEG | | 4644 | BTS-4.7MEG | |
| R89 | 470K | | 4622 | | |
| R90 | 470K | | 4623 | | |
| R91 | 15000 5% | | 4610 | BTS-1500 5% | |
| R92 | 100K | | 4571 | BTS-100K | |
| R93 | 100K | | 4571 | | |
| R94 | 4700Ω | | 4576 | BTS-4700 | |
| R95 | 1MEG | | 4614 | BTS-1MEG | |
| R96 | 1000Ω | 3 | 14698 | BTB-1000 | |
| R97 | 8200Ω | 3 | 34580 | BTB-8200 | |
| R98 | 4700Ω | | 4576 | BTS-4700 | |
| R99 | 15Ω | 1 | 34506 | BTA-15 | |
| R100 | 2.2Ω 5% | | 4788 | BWS-2.2 5% | |
| R101 | 3000Ω | 10 | 4743A | PW10-3000 | |
| R102 | 120Ω | 10 | 4701A | | |
| R103 | 2.2MEG | | 4608 | BTS-2.2MEG | |
| R104 | 1MEG | | 4614 | BTS-1MEG | |
| R105 | 330K | | 4677 | BTS-330K | |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | HOFFMAN PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| T1 | 117VAC | 550VCT | 5V | 6.3V | 5079 | | P-3055 | P-8335 | 36R92 ① | R-52HC① |
| | ⚠ 1.7A | ⚠ 280A | ⚠ 3A | ⚠ 5A | | | | | | |
| | | | | SEC. 4 | | | | | | |
| | | | | 6.3V | | | | | | |
| | | | | @ 2A | | | | | | |

⚠ Parallel and phase 6.3V ⚠ 5A filament windings.

## TRANSFORMERS (SWEEP CIRCUITS)

| ITEM No. | USE | REPLACEMENT DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | HOFFMAN PART No. | Halldorson PART No. | Merit PART No. | RCA TYPE No. | Ram PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T3 | Vert. Output | 5155A-2 | 22900 ① | A-2323 ② | | V307 ③ | A-8143 ② | 28S77 | A-103X | |
| | Alt. Vert. Output | 5156A | 21800 ① | A-2533 ③ | | V307 ③ | A-8143 ③ | 28S77 | A-103X | |
| T3A | Yoke - Horiz. (20MM) | 9981D ① | DF807 | MDF-92 | 2381R | Y90F19/45 | DY-16A ③ ⑤ | Y-16 | Y-41 & | |
| B | (90°) - Vert. (30.5MM) | | ① ⑤ | ① ⑤ | ① ⑤ ⑥ | ③ ⑤ ⑥ | ⑤ ⑥ | ① | WW4 ⑤① | |
| M4 | Rear Cover and Centering Device | 10028 | | | | | | | | |
| T4 | Horiz. Output | 5156A-3 | FB419 * | HVO-36 * | 2357 * | X094 * | HO-256 * | FLY-16 * | D-50 * | |
| | Alt. Horiz. Output | 5158A | FB419 * | HVO-36 * | 2357 * | X094 * | HO-256 * | FLY-16 * | D-50 * | |
| T5 | Width Coil | 5464 | RF800① | MWC-1① | R2RI | 30JR18 | WC-8 ① ⑧ | WC-18 ① | WLC-6 | |

① Use 8 to 1 turns ratio.
② Drill new mounting hole(s).
③ Includes yoke plug and resistors R84, R85 and capacitor C86.
④ Connect horizontal damping network across #3 and #7
⑤ Use original horizontal damping network, if necessary.
⑥ Use original rear cover and centering device.
⑦ Enlarge mounting hole.
⑧ Use terminals #1 and #2.
⑨ Use red and blue terminals.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | PRI | SEC | HOFFMAN PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T6 | 8400Ω | 2 7Ω | 5196A | 21113 ① | A-3020 | A-3478 ① | 28S48 | S-52 | ① Drill one new mounting hole |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | HOFFMAN PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 6-8Ω | 9130 ① | 4A12E ② | ① Used in Models SP3161, U, B3151, U, M3151, U, SP3161, U |
| SP2 | 10" | PM | 3-4Ω | 9013 ③ | 10A8I | ② Parallel and phase |
| | 8" x 9" | PM | 3-4Ω | 9131 ③ | 8A8I ③ | ③ Used in Models B3214, U, M3214, U, P3214, U, W3214, U |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | HOFFMAN PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Ist. Video IF | 5219A | 17-4534 | TV-131 | 6226 | |
| L2 | 2nd. Video IF | 5334A | 17-4535 | | 6225 | Includes 41 25MC Trap |
| L3 | 3rd. Video IF | 5327A | 17-4538 | | 6222 | Includes 47 33MC Trap |
| L4 | 4th Video IF | 5254A | 17-5004 | TV-126 | 6224 | |
| L5 | Series Peaking Coil | 5262A | 19-3100 | TV-181 | 6177 | 100 Microhenries |
| | Shunt Peaking Coil | 5307A | | | 6156 | 820 Microhenries |
| L6 | 4.5MC Trap | 5312A | 20-1004 | TV-151 | 1489 | |
| L7 | Series Peaking Coil | 5256A | 19-3300 | | 6152 | 330 Microhenries |
| L9 | Sound IF | 5231A | 20-1004 | TV-151 | 1489 | |
| L10 | Ratio Det. | 5253A | 17-3497 | | 6205 | Tertiary winding 5Ω |

## TRANSFORMER (HORIZ. OSC.)

| ITEM No. | DC RES | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | HOFFMAN PART No. | MEISSNER PART No. | MERIT PART No. | RCA TYPE No. | Ram PART No. | Thordarson PART No. | |
| LJ1 | 53Ω | | 5447 | 19-1576 | TV-183 | 5210 | M-102 | 28S-5 | 20 5 - 45 Millihenries |

## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | HOFFMAN PART No | REPLACEMENT DATA |
|---|---|---|---|---|
| X1 | Vert. Integrator | 2200MMF, 4700MMF, 4700MMF, 22K, 8200Ω,8200Ω | 9695 | Aerovox PA-110<br>Centralab PC-100<br>Cornell-Dubilier 15TM6<br>Erie 4406-01<br>Sprague Y-1 |

## HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

| ORIGINAL TERMINAL CONNECTIONS | Halldorson Replacement Connections | Merit Replacement Connections | RCA Replacement Connections | Ram Replacement Connections | Stancor Replacement Connections | Thordarson Replacement Connections | Triad Replacement Connections |
|---|---|---|---|---|---|---|---|
| 6 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Connect Width Coil Across | 1 & 3 | 1 & 3 | 1 & 3 | 1 & 3 | 1 & 3 | 1 & 3 | 1 & 3 |

HOFFMAN MODELS B3151, U, B3214, U, M3151, U, M3214, U, P3214, U, SP3151, U, SP3161, U, M3214, U, W3214, U (Ch. 324, U)

# PARTS LIST AND DESCRIPTIONS (Continued)

## CRYSTAL DIODES

| ITEM No. | ORIG. TYPE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|
| | | HOFFMAN PART No. | CBS PART No. | SYLVANIA PART No. | |
| M1 | 1N82A | | 1N82A | 1N82A | UHF Mixer (Clip-in) |

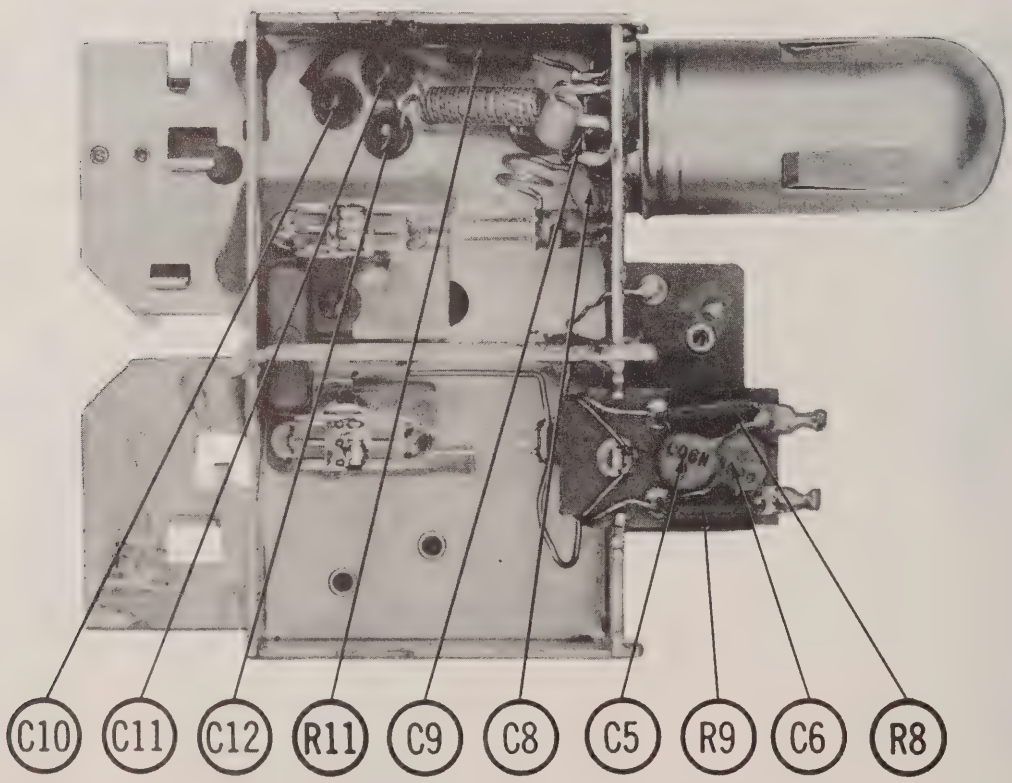
## MISCELLANEOUS

| ITEM No. | PART NAME | HOFFMAN PART No. | NOTES |
|---|---|---|---|
| M2 | Pilot Light | 9503 | Type #51 |
| M3 | Tuner | 9931 | UHF-VHF |
| | Tuner | 9930 | VHF |
| M4 | Centering Device | 10028 | Includes yoke rear cover |
| M5 | Ion Trap | 9713 | 21" Versions |
| | Ion Trap | 9702 | 24" Versions |

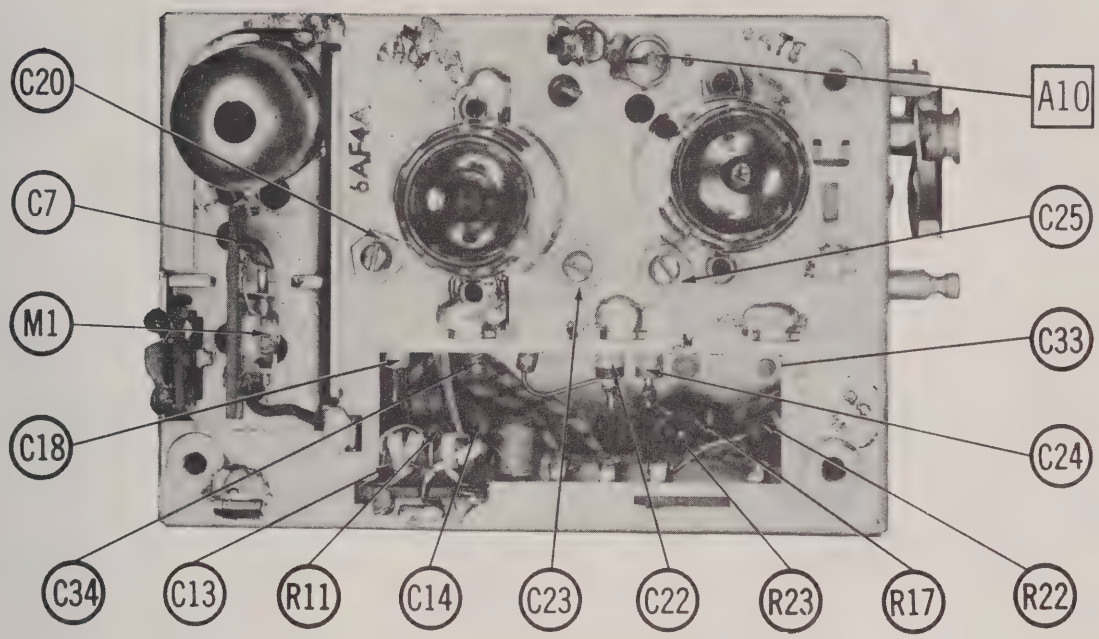
## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

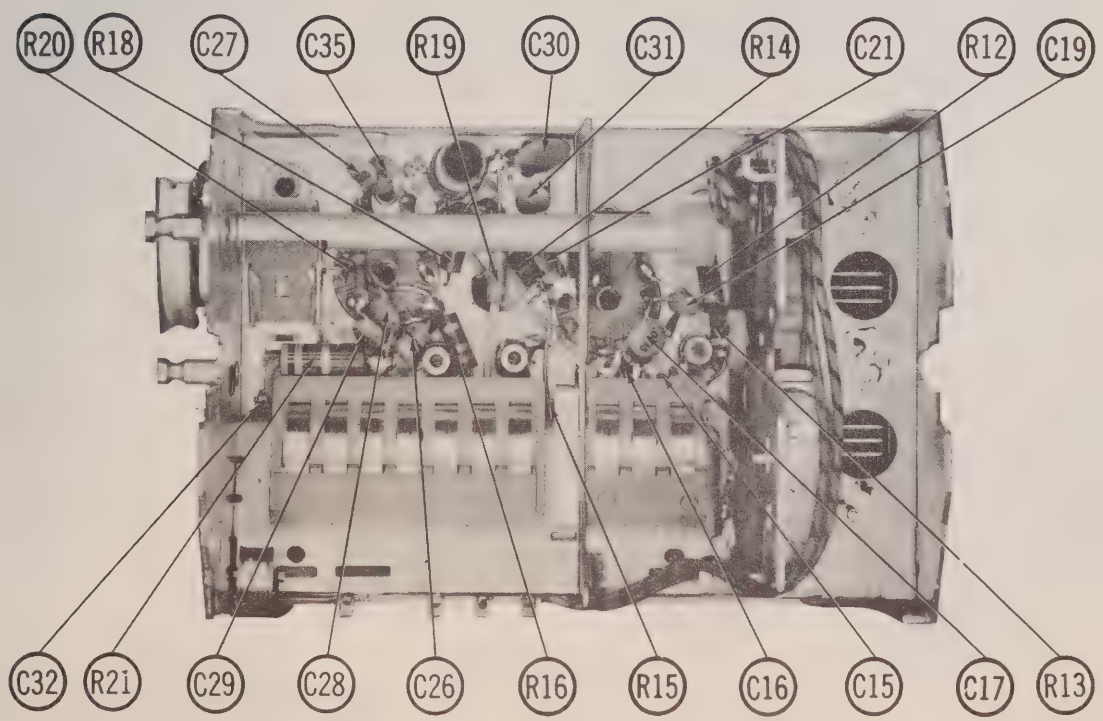
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Safety Glass | 833 | 21" Models |
| Safety Glass | 836 | 24" Models |
| Mask | 22078 | 21" Models |
| Mask | 22079 | 24" Models |
| Knob | B33765 | UHF Channel Selector - UHF Versions |
| Knob | B33766 | VHF Channel Selector - UHF Versions |
| Knob | B33841 | VHF Channel Selector - VHF Versions |
| Knob | B33855 | Fine Tuning - UHF Versions |
| Knob | B33839 | On-off-volume, Brightness |
| Knob | B33056 | Vert. Hold, Contrast |
| Knob | B33840 | Tone |
| Knob | 33040 | Pushbutton - Models SP3161 |
| Cabinet | 77549 | Mahogany - Model M3151 |
| Cabinet | 77553 | Maple - Model SP3151 |
| Cabinet | 77551 | Oak - Model B3151 |
| Cabinet | 77550 | Mahogany - Model M3151U |
| Cabinet | 77554 | Maple - Model SP3151U |
| Cabinet | 77552 | Oak - Model B3151U |
| Cabinet | 77508 | Maple - Model SP3161 |
| Cabinet | 77509 | Maple - Model SP3161U |
| Cabinet | 7985 | Mahogany - Models M3214, U |
| Cabinet | 7988 | Maple - Models P3214, U |
| Cabinet | 7986 | Oak - Models B3214, U |
| Cabinet | 7987 | Walnut - Models W3214, U |



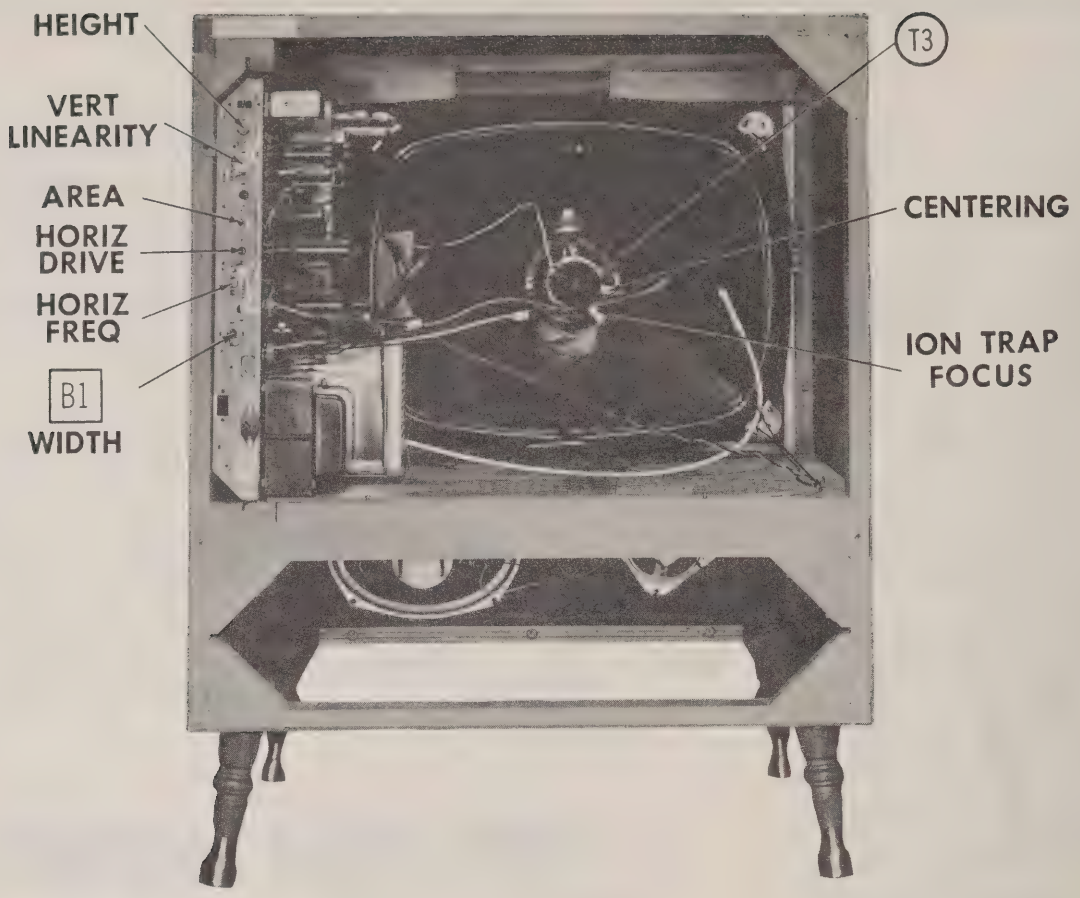

RF TUNER REAR VIEW




**RF TUNER-TOP VIEW**




**RF TUNER-BOTTOM VIEW**




## CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.

2. Set the brightness and contrast controls for a normal picture.

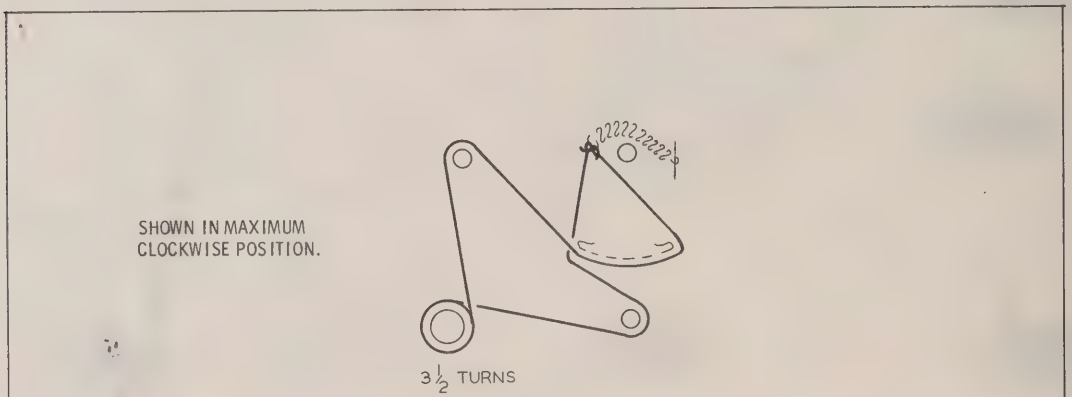
3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

5. Turn to an unused channel. If vertical lines appear near the center of the screen, slowly adjust the horizontal drive control (R7) until white lines disappear.

6. If in step 5 the horizontal drive was adjusted, tune in a TV station and repeat steps 3 and 4. Check horizontal sync by switching off channel and back again.

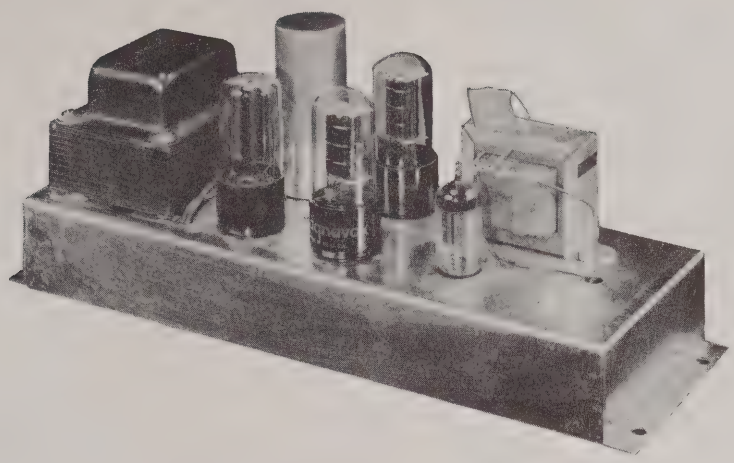
7. Adjust width slug (B1) for a picture slightly wider than necessary to fill the picture mask.




## VHF FINE TUNING DRIVE CORD STRINGING

# MAGNAVOX CHASSIS AMP-161AA





PROPERTY OF
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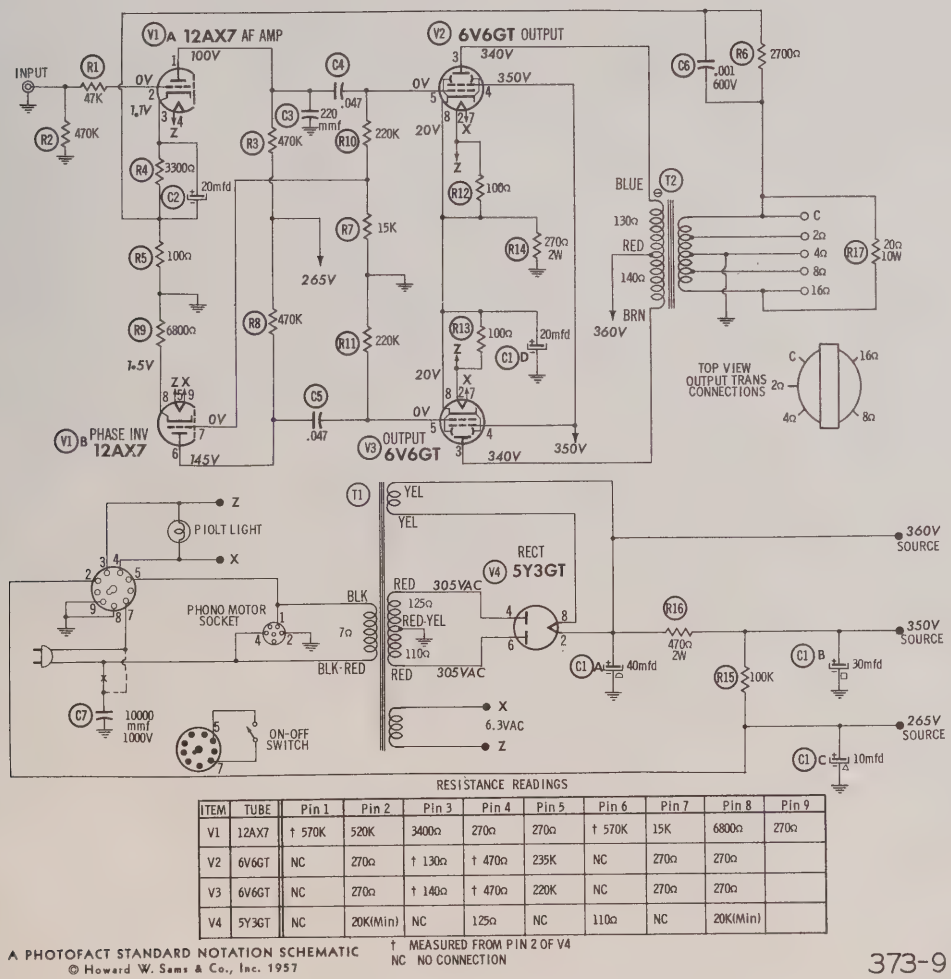
3924 MEADE ST.
DENVER, COLORADO

MAGNAVOX CHASSIS AMP-161AA

| | |
|---|---|
| TRADE NAME | Magnavox Chassis AMP-161AA |
| MANUFACTURER | Magnavox Co., 2131 Bueter Rd., Fort Wayne 4, Indiana |
| TYPE SET | AC Operated Audio Amplifier |
| TUBES (Four) | Type 12AX7 AF Amp. - Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier |
| POWER SUPPLY | 110-120 Volts AC-60 Cycles RATING .57 Amp. @ 117 Volts AC |




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | † 570K | 520K | 3400Ω | 270Ω | 270Ω | † 570K | 15K | 6800Ω | 270Ω |
| V2 | 6V6GT | NC | 270Ω | † 130Ω | † 470Ω | 235K | NC | 270Ω | 270Ω | |
| V3 | 6V6GT | NC | 270Ω | † 140Ω | † 470Ω | 220K | NC | 270Ω | 270Ω | |
| V4 | 5Y3GT | NC | 20K(Min) | NC | 125Ω | NC | 110Ω | NC | 20K(Min) | |

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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† MEASURED FROM PIN 2 OF V4
NC NO CONNECTION

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# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | AF Amp. - Phase Inv. | 12AX7 | |
| V2 | Output | 6V6GT | |
| V3 | Output | 6V5GT | |
| V4 | Rectifier | 5Y3GT | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | MAGNAVOX PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | ▲40 | 450 | 270021-56 | AFH4-78 | D0640 | FP429 | TMQ-92 | Q-380 | TVL-4734 |
| B | ■30 | 450 | | | | | | | |
| C | ▲10 | 450 | | | | | | | |
| D | 20 | 25 | | | | | | | |
| C2 | 20 | 25 | 270027-28 | PRS50V20 | BBR20-25 | TC45 | TD-20-150 | MT-0220 | TVA-1410 |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | MAGNAVOX PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C3 | 220 | | 250207-48 | BPD-00022 | DD-221 | L10T22 | ED-220 | UC-5322 | 5GA-T22 | |
| C4 | .047 | 400 | 250211-11 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C5 | .047 | 400 | 250211-11 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C6 | .001 | 600 | 250201-1 | BPD-001 | DD-102 | CUB6D1 | ED-1000 | GEM-621 | 6TM-D1 | |
| C7 | 10000 | 1000 | 250219-2 | | | BYA6S1 | | | | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | MAGNAVOX PART No. | IRC PART No. | |
| R1 | 47K | | 230104-82 | BTS-47K | |
| R2 | 470K | | 230104-94 | BTS-470K | |
| R3 | 470K | | 230104-94 | BTS-470K | |
| R4 | 3300Ω | | 230104-68 | BTS-3300 | |
| R5 | 100Ω | | 230104-50 | BTS-100 | |
| R6 | 2700Ω | | 230104-67 | BTS-2700 | |
| R7 | 15K | | 230104-76 | BTS-15K | |
| R8 | 470K | | 230104-94 | BTS-470K | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | MAGNAVOX PART No. | IRC PART No. | |
| R9 | 6800Ω | | 230104-72 | BTS-6800 | |
| R10 | 220K | | 230104-90 | BTS-220K | |
| R11 | 220K | | 230104-90 | BTS-220K | |
| R12 | 100Ω | | 230104-50 | BTS-100 | |
| R13 | 100Ω | | 230104-50 | BTS-100 | |
| R14 | 270Ω | 2 | 230106-55 | BTB-270 | |
| R15 | 100K | | 230104-86 | BTS-100K | |
| R16 | 470Ω | 2 | 230106-58 | BTA-470 | |
| R17 | 20Ω | 10 | 240071-2 | PW10-20 | |

## TRANSFORMER (POWER)

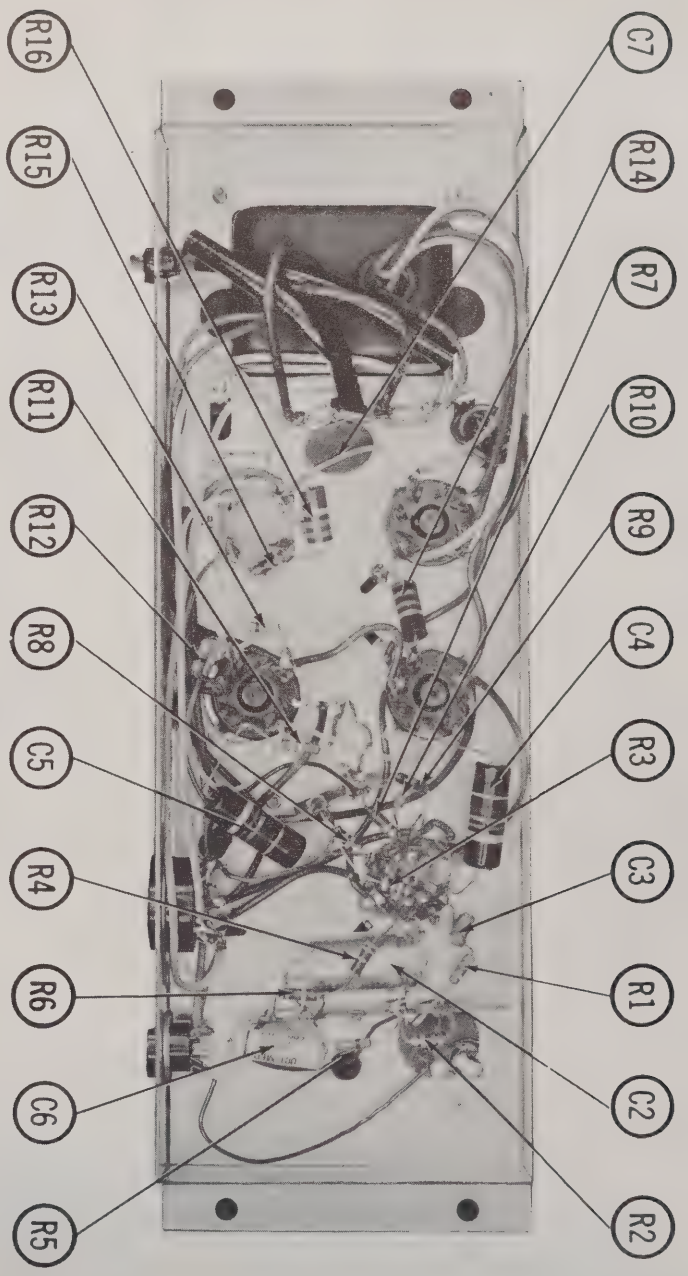
| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | MAGNAVOX PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| T1 | 117VAC @ .62A | 612VCT @ .082A | 5VAC @ 2A | 6.3VAC @ 1.2A | 300078-2 | P9305 ① | P-3052 | PM8408① | 22R04 ① | R-9B ① |

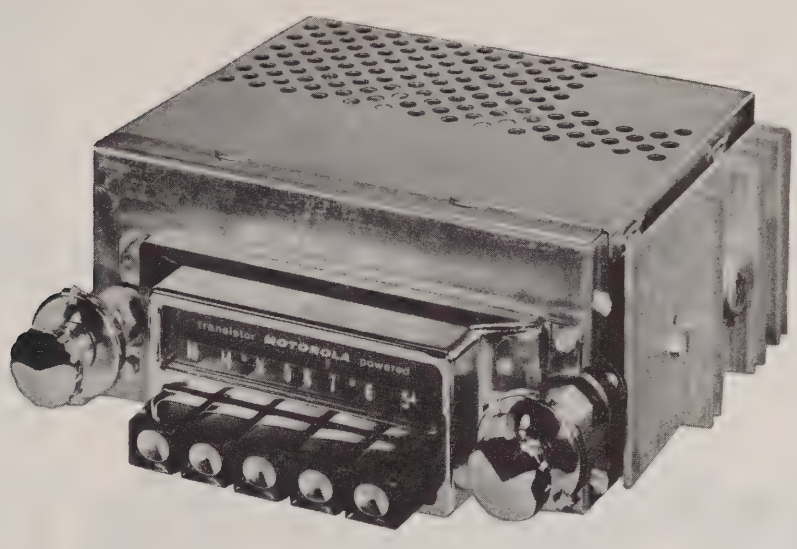
① Tape center tap on 6.3V winding.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | MAGNAVOX PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 6900Ω CT | 16Ω Tap @ 8Ω, 4Ω & 2Ω | 330043-1 ① | | A-3027 | | | | ① Alternate Part #330038-1 |

# CHASSIS—BOTTOM VIEW






PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MOTOROLA
MODEL OEA7X

MOTOROLA
MODEL OEA7X

| | |
|---|---|
| TRADE NAME | Motorola OEA7X (For 1957 Oldsmobile Automobiles) |
| MANUFACTURER | Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois |
| TYPE SET | Battery Operated Custom Built AM Automobile Receiver With Transistorized Output |
| TUBES (Five) | Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 IF Amplifier, 12F8 Det.-AVC-AF Amp., 12K5 Driver |
| POWER SUPPLY | 12 Volt Storage Battery — RATING 1.6 Amp. @ 12.6 Volts DC |
| TUNING RANGE—BROADCAST | 540KC-1600KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .1MFD | High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis. | 262.5KC (400% Mod.) | High frequency end stop. | Across voice coil. | A1, A2, A3, A4 | Adjust for maximum output. |
| 2. | Fig. 1 | Thru dummy to antenna receptacle. | 1610KC | " | " | A5, A6 A7 | " |
| | The following steps are not necessary unless tuner has been tampered with or associated components have been replaced. Before proceeding back tuner cores A8, A9, A10 out of coils but not out of coil forms. | | | | | | |
| 3. | " | Thru dummy to antenna receptacle. | 1610KC | High frequency end stop. | Across voice coil. | A5, A6, A7 | Adjust for maximum output. |
| 4. | " | " | 1200KC | Back tuner carriage 9/32" from high freq. end stop. | " | A8, A9, A10 | Adjust for maximum output. (Alignment tool Part No. 66A76278 may be used). |
| 5. | " | " | 1610KC | High frequency end stop. | " | A5, A6 A7 | Adjust for maximum output. Repeat steps 4 & 5 making step 5 the last adjustment. |
| 6. | With radio installed in car and antenna fully extended, tune in a weak station near 1400KC, adjust A7 for maximum volume. | | | | | | |

PUSHBUTTON ADJUSTMENT

Pull pushbutton straight out.
Tune manually to desired station, press pushbutton in firmly.
Repeat procedure on remaining pushbuttons.

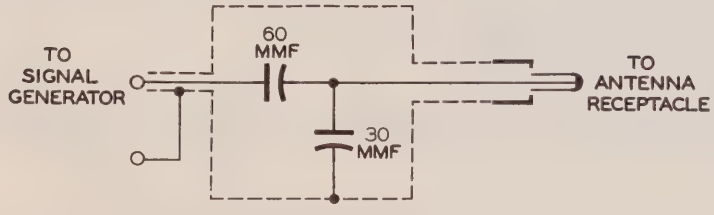



FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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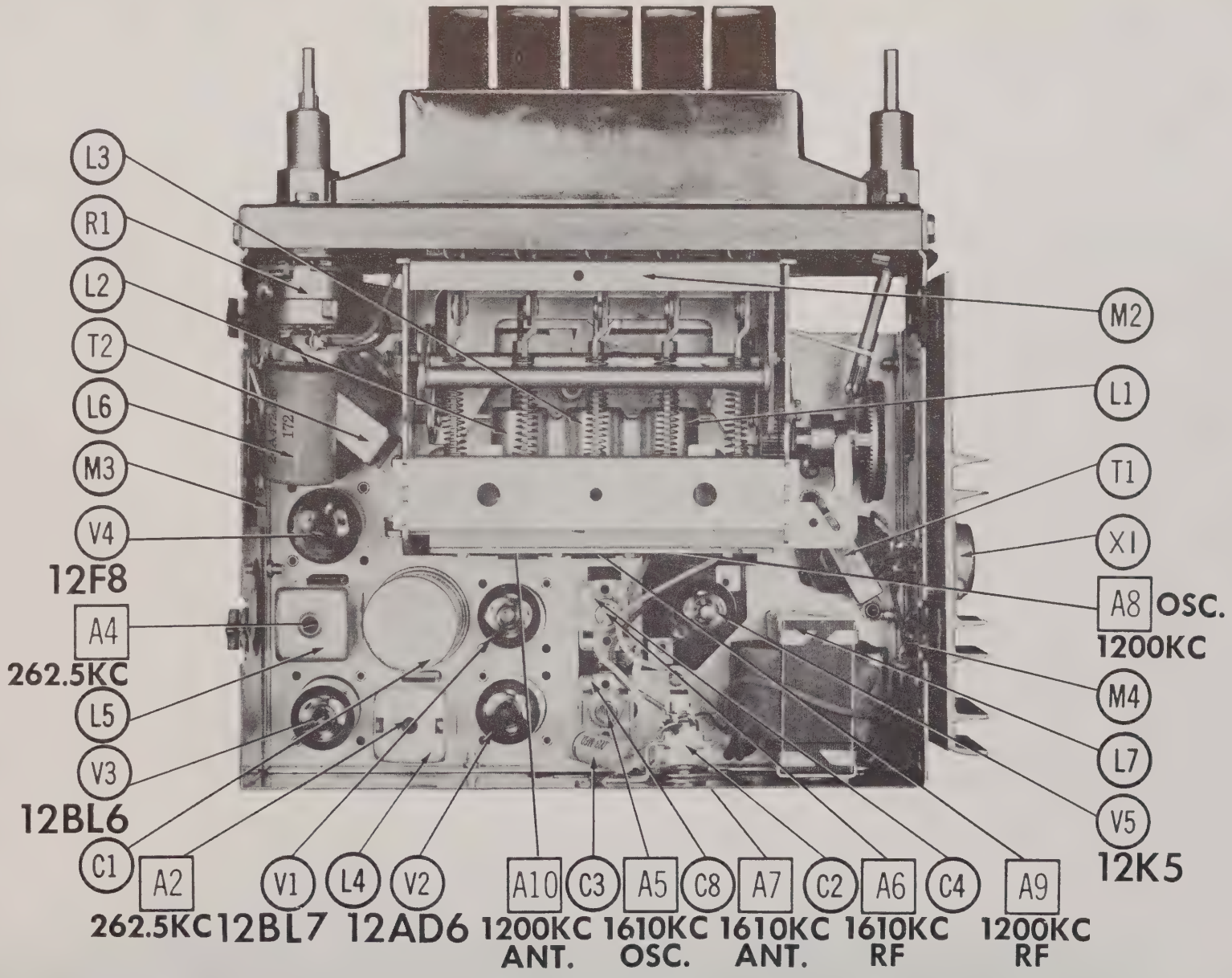



CHASSIS-TOP VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | RF Amplifier | 12BL6 | |
| V2 | Converter | 12AD6 | |
| V3 | IF Amplifier | 12BL6 | |

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V4 | Det. -AVC-AF Amplifier | 12F8 | |
| V5 | Driver | 12K5 | |

## TRANSISTORS

| ITEM No. | ORIG. TYPE | USE | REPLACEMENT DATA | | | NOTES |
|---|---|---|---|---|---|---|
| | | | CBS PART No. | RAYTHEON PART No. | SYLVANIA PART No. | |
| X1 | 2N178 | Output | 2N155 | | 2N307/ 2N242 | Type 2N176 used in some versions. |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | MOTOROLA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | ■ 500 | 16 | 23B539261 | AFH2-02-10 | BO045 | WP200. 5 | | | R2452 * |
| B | ▲ 100 | 16 | | | | | | | |

* Non-Catalog Item.

## FIXED CAPACITORS

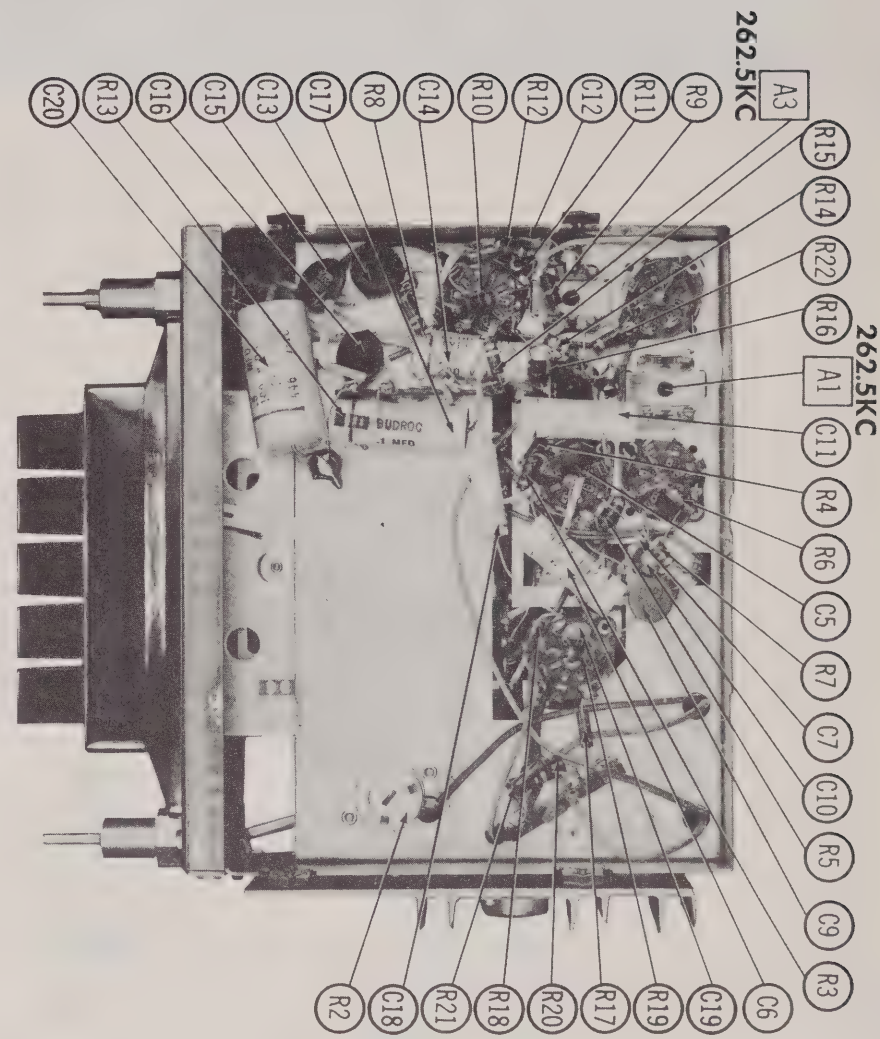
**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | MOTOROLA PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C2 | 35-200 | | 20K541699 | | | | | | | |
| C3 | .003 | 600 | 8R121569 | BPD-003 | DD-302 | CUB6D3 | GP-3000 | GEM-623 | 6TM-D3 | |
| C4 | 20-120 | | 20K541014 | | | | | | | |
| C5 | 27 | | 21R410089 | | TCZ-27 | C10Q27C | TCO-27 | | | NPO 10% |
| C6 | .05 | 200 | 8R121005 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C7 | 220 | | 21K121698 | BPD-00022 | DD-221 | L10T22 | ED-220 | UC-5322 | 5GA-T22 | |
| C8 | 310 - 390 | | 20K541700 | | | | | | | |
| C9 | 100 | | 21R410036 | N750-SI100 | TCN-100 | C10T1U | TC7-100 | NT-531 | 5TCU-T1 | N750 |
| C10 | 47 | | 21R115593 | N750-SI47 | TCN-47 | C10Q47U | TC7-47 | NT-5447 | 5TCU-Q47 | N750 |
| C11 | .05 | 200 | 8R121005 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C12 | 27 | | 21R410089 | | TCZ-27 | C10Q27C | TCO-27 | | | NPO 10% |
| C13 | 10000 | | 21R121946 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C14 | .05 | 200 | 8R121005 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C15 | 10000 | | 21R121946 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C16 | 5000 | | 21R122871 | BPD-005 | DD-502 | BYA10D5 | ED-005 | DC525 | 5HK-D5 | |
| C17 | .1 | 200 | 8R121573 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C18 | .01 | 200 | 8R121868 | BPD-01 | DD-103 | CUB4S1 | GP-10000 | GEM-411 | 4TM-S1 | |
| C19 | 470 | | 21R114554 | BPD-00047 | DD-471 | BYA10T47 | ED-470 | UC-5347 | 5GA-T47 | |
| C20 | .5 | 100 | 8K121666 | P288N-5 | | CUB2P5 | | GEM-205 | 2TM-P5 | |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESIST-ANCE | WATTS | MOTOROLA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 500K | ½ | 18K541664 | F1-41 | RTV-538C | | UE1501S | Tone |
| B | 1Meg | ½ | | R2-56 | | | | Volume, Tap ⓐ 500K |
| C | Switch | | | KB-1 | | | | |
| R2 | 210Ω | 2 | 18K540718 | | 39-200 | | | Transistor Bias (Wire Wound) |

# CHASSIS—BOTTOM VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | MOTOROLA PART No. | IRC PART No. | |
| R3 | 22Meg | | 6R488158 | BTS-22Meg | |
| R4 | 2700Ω | | 6R5577 | BTS-2700 | |
| R5 | 8200Ω | | 6R2004 | BTS-8200 | |
| R6 | 10Meg | | 6R5622 | BTS-10Meg | |
| R7 | 47K | | 6R6048 | BTS-47K | |
| R8 | 3.3Meg | | 6R2118 | BTS-3.3Meg | |
| R9 | 22K | | 6R6028 | BTS-22K | |
| R10 | 8.2Meg | | 6R5585 | BTS-8.2Meg | |
| R11 | 3.9Meg | | 6R490110 | BTS-3.9Meg | |
| R12 | 3.3Meg | | 6R6497 | BTS-3.3Meg | |
| R13 | 330K | | 6R6014 | BTS-330K | |
| R14 | 270K | | 6R6414 | BTS-270K | |
| R15 | 120K | | 6R5631 | BTS-120K | |
| R16 | 10K | | 6R6054 | BTS-10K | |
| R17 | 56Ω | | 6R5614 | BTS-56 | |
| R18 | 2.2Meg | | 6R6433 | BTS-2.2Meg | |
| R19 | 18Ω | | 6R2031 | BTS-18 | |
| R20 | 5.6Ω 5% | 1 | 6A488139 | | |
| R21 | | | 6K540634 | | Note 1 |
| R22 | 82Ω | | 6R2035 | BTS-82 | |

Note #1. Temperature compensating type, 10Ω @ 25°C.

## TRANSFORMER (INPUT)

| ITEM No. | TURNS RATIO | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | MOTOROLA PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 6.5: | 1 | 25K541702 | GH10 ① | | | | | ① Tape Center Tap On Secondary. |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | MOTOROLA PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | 140Ω | 3-4Ω | 25C541703 | | | | | | |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | MOTOROLA PART No. | QUAM PART No. | |
| SP1 | 6" x 9" | PM | 3-4Ω | 50C541101 | 69A2 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | MOTOROLA PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Antenna Coil | 24C535458 | | | | Part of M2 |
| L2 | RF Coil | 24C535458 | | | | Part of M2 |
| L3 | Osc. Coil | 24C535456 | | | | Part of M2 |
| L4 | Input IF | 24B580193 | 16-6752 | BC-350 | 12-H1 | |
| L5 | Output IF | 24K532153 | 16-6754 | BC-354 | 12-H6 | |
| L6 | "A" Lead Choke | 24A472535 | | | | 15.2 Microhenries |

# CHASSIS—BOTTOM VIEW

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ∿) | MOTOROLA PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| L7 | .56A | .6Ω | 11 Mil. | 25K541701 | | | | | |

## MISCELLANEOUS

| ITEM No. | PART NAME | MOTOROLA PART No. | NOTES |
|---|---|---|---|
| M1 | Dial Light | 65R533821 | Type #1891 |
| M2 | Tuner | 77K541218 | (AT-214) Complete. (Includes L1, L2, L3,& Mtg. Plate Assembly. Part #1V590922) |
| M3 | Spark Plate | 64K530177 | |
| M4 | Spark Plate | 64K530177 | |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

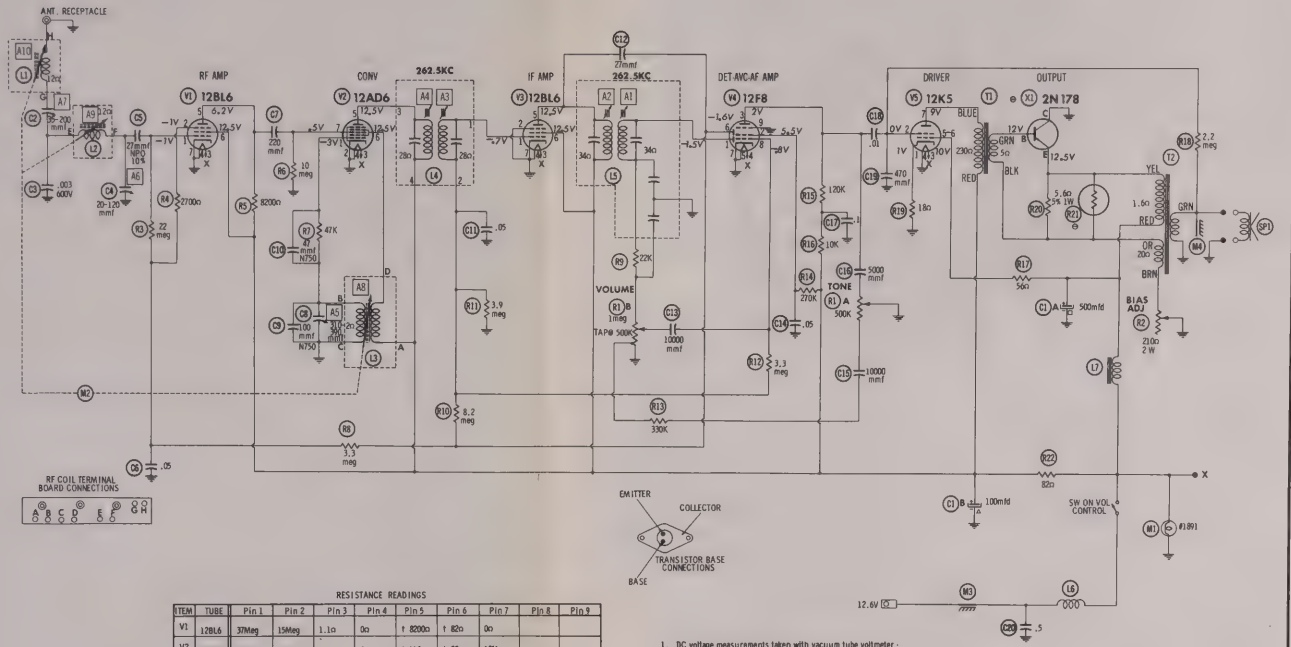
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 1V538924 | On-Off-Volume, Tuning |
| Knob | 36B472865 | Tone |
| Knob | 36K513169 | Dummy |
| Dial Scale | 34B541738 | |
| Pointer | 1V538739 | |

### EMITTER CURRENT ADJUSTMENT

Connect a milliammeter in series with the emitter terminal of the transistor (X1). The internal resistance of the meter should not exceed .5Ω. Connect a power source of 14 volts DC to the receiver and allow a warm-up period of 15 minutes. Adjust R2 for a meter reading of 500MA.

(Alternate Method)

Remove the transistor (X1) from its socket. Connect an ammeter (0-3 Amp.) in series with the receiver "A" lead. The internal resistance of the meter should not exceed .02Ω. Connect a power source of 14 volts DC to the receiver and allow a 15 minute warm-up period. Accurately measure the current, turn the receiver off and reconnect the transistor. Be certain that the mounting screws are tightened securely. Turn on the receiver and adjust R2 for an increase of 500MA in current drain.




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12BL6 | 37Meg | 15Meg | 1.1Ω | 0Ω | † 8200Ω | † 82Ω | 0Ω | | |
| V2 | 12AD6 | 47K | 0Ω | 1.1Ω | 0Ω | † 110Ω | † 82Ω | 10Meg | | |
| V3 | 12BL6 | 3.9Meg | 0Ω | 1.1Ω | 0Ω | † 115Ω | † 82Ω | 0Ω | | |
| V4 | 12F8 | 1Meg | † 270K | † 130K | 1.1Ω | 0Ω | 12Meg | 0Ω | 7.1Meg | 0Ω |
| V5 | 12K5 | 18Ω | 2.2Meg | 1.1Ω | 0Ω | † 56Ω | † 56Ω | † 310Ω | | |

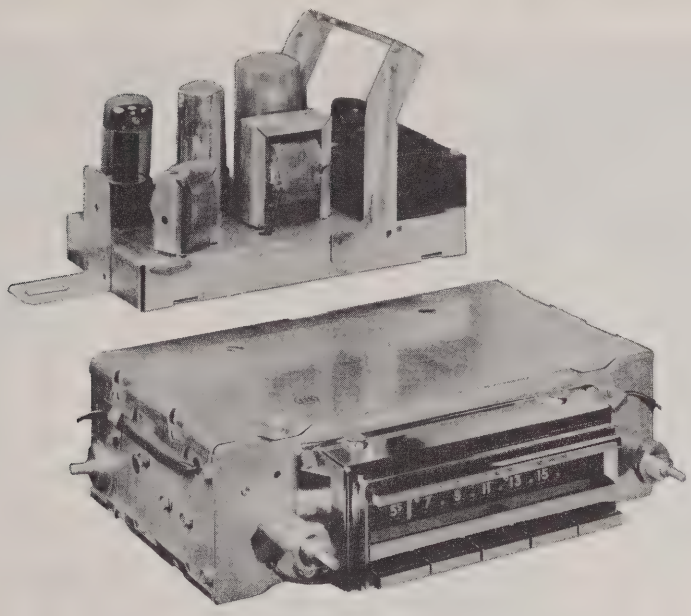
† MEASURED FROM JUNCTION OF R22 AND L7. TRANSISTOR RESISTANCE NOT TAKEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

JC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PONTIAC
MODEL 988672

PONTIAC
MODEL 988672

| | |
|---|---|
| TRADE NAME | Pontiac Model 988672 (For 1957 Pontiac Automobiles) |
| MANUFACTURER | Delco Radio Div., G. M. Corp., Kokomo, Indiana |
| TYPE SET | Battery Operated Custom Built AM Automobile Receiver |
| TUBES (Eight) | Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det. -AVC-AF Amp., 12AU7 Trigger, (2) 12V6GT Output, 0Z4 Rectifier |
| POWER SUPPLY | 12 Volt Storage Battery — RATING 3.4 Amp. @ 12.6 Volts DC |
| TUNING RANGE—BROADCAST | 540KC - 1600KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "Treble".

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .1MFD | High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis. | 262KC (400~ Mod) | High frequency end stop | Across C1 | A1, A2, A3 | To tune to high frequency end stop, place a .070" feeler gauge (or bare #13 wire) in slot against high frequency end stop. Run planetary arm against feeler gauge with manual control. Adjust A1, A2, A3 for maximum deflection. |
| 2 | " | " | " | " | " | A4 | Adjust for MINIMUM deflection. |
| | Check setting of oscillator core (A8). Rear of core should be 1 25/32" from mounting end of coil form. | | | | | | |
| 3 | 68MMF | High side to Antenna Receptacle. Low side to chassis. | 1615KC | High frequency end stop | Across C1 | A5, A6, A7 | Adjust for maximum deflection. |
| 4 | " | " | 600KC | Tune to 600KC signal | " | A9, A10 | " |
| 5 | " | " | 1615KC | High frequency end stop | " | A6, A7 | " |
| 6 | " | " | 1100KC | Tune to 1100KC signal | " | | If necessary, adjust pointer (with pointer adjustment screw) to coincide with 1100KC on dial. |
| 7 | With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, and adjust A7 for maximum volume. | | | | | | |

PUSHBUTTON ADJUSTMENT

1. Open hinged door below the dial so that selector tabs are exposed.
2. Tune manually to desired station near left side of dial.
3. Move selector tab on extreme left until tab coincides with pointer tip.
4. Repeat procedure for remaining tabs choosing stations from left to right on dial.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | RF Amplifier | 12BA6 | |
| V2 | Converter | 12BE6 | |
| V3 | IF Amplifier | 12BA6 | |
| V4 | Det. -AVC-AF Amp. | 12BF6 | |

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V5 | Trigger | 12AU7 | |
| V6 | Output | 12V6GT | |
| V7 | Output | 12V6GT | |
| V8 | Rectifier | 0Z4 | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA DELCO PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ■20 | 400 | 6322 | AFH3-120 | C0990 | FP345. 8 | TMT-106 | T-550 | TVL-3678 |
| B | ▲20 | 400 | | | | | | | |
| C | 20 | 25 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

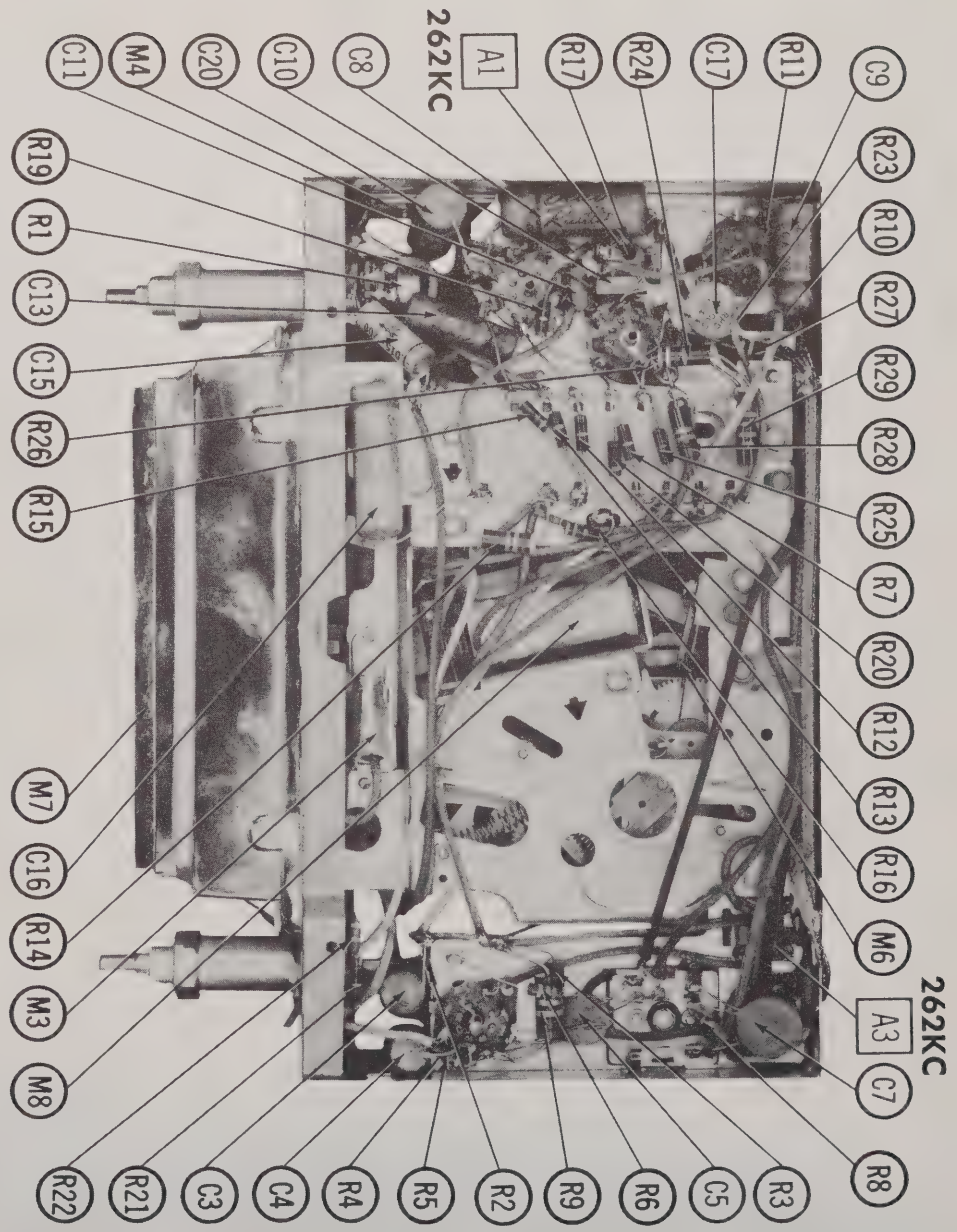
| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA DELCO PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C2A | | | 7268970 | | | | | | | |
| B | | | | | | | | | | |
| C3 | . 05 | 200 | 6612 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C4 | . 05 | 200 | 6612 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C5A | 68 | | 6369 | BPD-000068 | DD-680 | L10Q68 | ED-68 | UC-5468 | 5GA-Q68 | |
| B | 39 | | 6366 | BPD-000039 | DD-390 | L10Q39 | ED-39 | UC-5439 | 5GA-Q39 | |
| C6A | | | | | | | | | | |
| B | | | 7242454 | | | | | | | |
| C | | | | | | | | | | |
| D | | | | | | | | | | |
| C7 | 250 | | 7266596 | | | | | | | N75 |
| C8 | . 1 | 400 | 6613 | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C9 | . 05 | 200 | 6612 | BPD-05 | DF-503 | CUB2S5 | | GEM-415 | 2TM-S5 | |
| C10 | 100 | | 1219498 | 1469-0001 | TCZ-100 | 22R5T1 | TCO-100 | ZT-531 | 5TCC-T1 | 5% |
| C11 | 100 | | 1219498 | 1469-0001 | TCZ-100 | 22R5T1 | TCO-100 | ZT-531 | 5TCC-T1 | 5% |
| C12 | 150 | | 6373 | N750-SI 150 | TCN-150 | C10T15U | TC7-150 | | 5TCU-T15 | N750 |
| C13 | . 01 | 400 | 6610 | BPD-01 | DD-103 | CUB4S1 | GP-10000 | GEM-411 | 4TM-S1 | |
| C14 | . 003 | 600 | 6629 | BPD-003 | D6-302 | CUB6D3 | GP-3000 | GEM-623 | 6TM-D3 | |
| C15 | . 015 | 200 | 7237719 | BPD-015 | DD16-153 | CUB6S15 | | GEM-4115 | 4TM-S15 | |
| C16 | . 1 | 400 | 6613 | P488N-1 | DF-104 | CUB4P1 | | GEM-401 | 4TM-P1 | |
| C17 | 2000 | | 6352 | BPD-002 | DD-202 | BYA10D2 | ED-002 | DC522 | 5HK-D2 | |
| C18 | 100 | | 6371 | BPD-0001 | DD-101 | L10T1 | ED-100 | UC-531 | 5GA-T1 | |
| C19 | . 004 | 800 | 6564 | P1088N-004 | DD16-402 | CUB10D4 | | GEM-1024 | 10TM-D4 | |
| C20 | . 2 | 100 | 6614 | P288N-22 | | CUB6P2 | | GEM-2022 | 2TM-P22 | |
| C21 | . 007 | 1600 | 6567 | P1688N-007 | DD16-702 | CUB16D7 | | GEM-1627 | MB-D7 | |
| C22 | . 1 | 200 | 6690 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |
| C23 | . 47 | 100 | 6692 | P288N-47 | | CUB2P47 | | GEM-2047 | 2TM-P47 | |

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA DELCO PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 500K | | 7269149 ① | | | | UE1472S | Tone |
| B | 750K | | | | | | | Volume, Tap ② 150K |
| C | Switch | | | | | | | |

① Alternate Part #7269142

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | DELCO PART No. | IRC PART No. | |
| R2 | 2. 2Meg | | 1239 | BTS-2. 2Meg | |
| R3 | 10K | 1 | 1174 | BTA-10K | |
| R4 | 1Meg | | 1235 | BTS-1Meg | |
| R5 | 100Ω | | 1113 | BTS-100 | |
| R6 | 330K | | 1229 | BTS-330K | |
| R7 | 1. 5Meg | | | BTS-1. 5Meg | |
| R8 | 22K | | 1215 | BTS-22K | |
| R9 | 12K | 2 | 1276 | BTB-12K | |
| R10 | 10Ω | | 1101 | BTS-10 | |
| R11 | 150Ω | | 1115 | BTS-150 | |
| R12 | 1Meg | | 1235 | BTS-1Meg | |
| R13 | 2. 2Meg | | 1239 | BTS-2. 2Meg | |
| R14 | 47K | 1 | 1259 | BTA-47K | |
| R15 | 1000Ω | | 1125 | BTS-1000 | |
| R16 | 3300Ω 5% | | 1220173 | BTS-3300 5% | |
| R17 | 47K | | 1219 | BTS-47K | |
| R18 | 82K | | 1222 | BTS-82K | |
| R19 | 1Meg 5% | | 1220169 | BTS-1Meg 5% | |
| R20 | 1. 5Meg 5% | | 1219492 | BTS-1. 5Meg 5% | |
| R21 | 1000Ω | | 1125 | BTS-1000 | |
| R22 | 47K | | 1219 | BTS-47K | |
| R23 | 5. 6Meg | | 1244 | BTS-5. 6Meg | |
| R24 | 3900Ω | 1 | 1169 | BTA-3900 | |
| R25 | 750Ω 5% | | 7266320 | BTS-750 5% | |
| R26 | 120K | | 1224 | BTS-120K | |
| R27 | 47K | 1 | 1259 | BTA-47K | |
| R28 | 10K | 1 | 1174 | BTA-10K | |
| R29 | 33K 5% | 1 | 7266230 | BTA-33K 5% | |
| R30 | 360Ω 5% | 1 | 7234563 | | |
| R31 | 1800Ω | 3 | | | Note 1 |
| R32 | 15K | 1 | 1253 | BTA-15K | |

Note 1. Mfgr. states to replace R31 with 5600Ω 1W (Part #1171) & 2700Ω 2W (Part #1204) connected in parallel.

## TRANSFORMER (VIBRATOR)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | DELCO PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
| T1 | 12. 6VCT @ 1. 8A | 540VCT @ .068A | | | 6067 | V3902 | P-2861 | P-6489 | 22R52 | V-31 |

## TRANSFORMER (INPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | DELCO PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T2 | | | 1220902 | | | | | | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | DELCO PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T3 | 9800Ω CT | 3-4Ω | 6063 | Z1404 ① | A-2936① | A-3852 ① | 24S61 ① | S-15X ① | ① Fabricate mounting. |

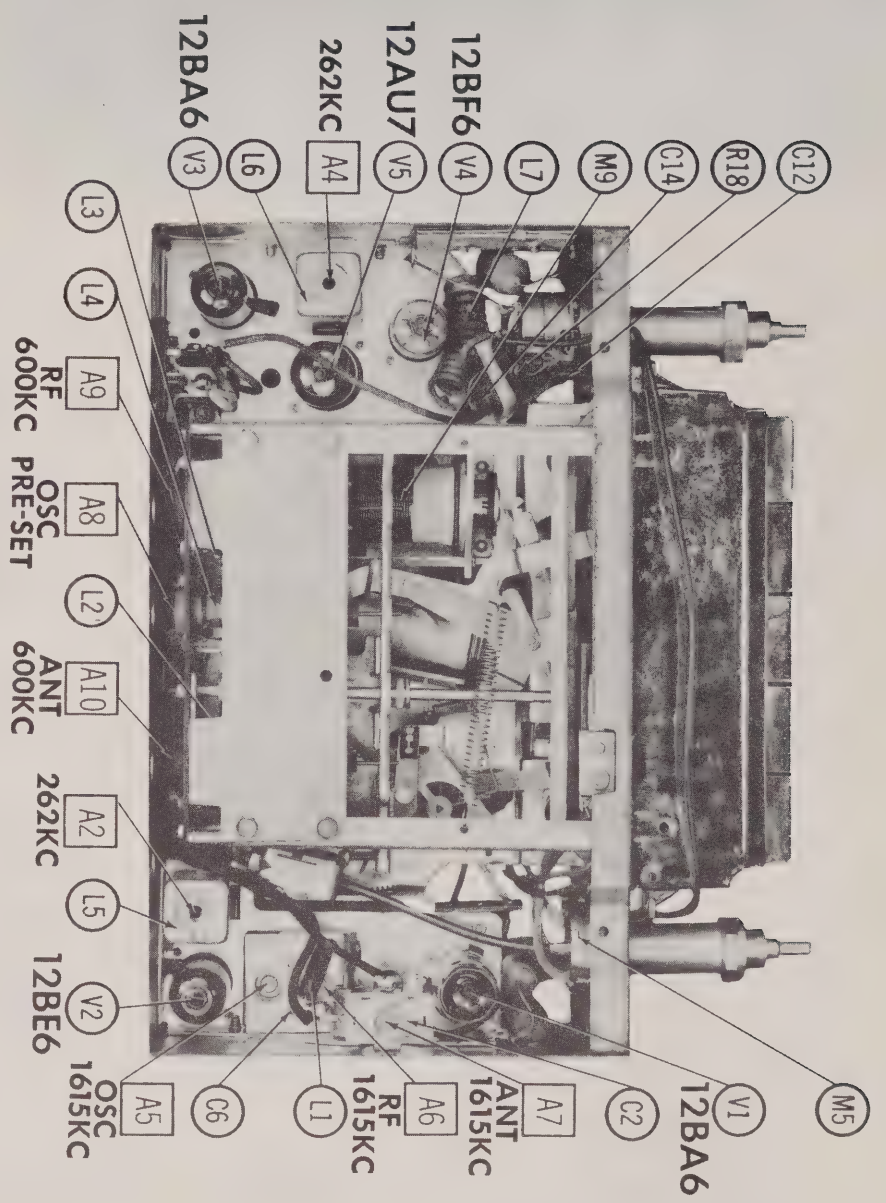
## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | DELCO PART No. | QUAM PART No. | |
| SP1 | 6" X 9" | PM | 3-4Ω | 7268329 | 69A3 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | DELCO PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Ant. Coupling Coil | 7255738 | 19-1004 | BC-565 | 4610 | 6. 5 Microhenries |
| L2 | Ant. Coil | 7257979 | | | | |
| L3 | RF Coil | 7257979 | | | | |
| L4 | Osc. Coil | 7263287 | | | | |
| L5 | Input IF | 1219508 | 16-6752 | BC-350 | 12-H1 | |
| L6 | Output IF | 1220204 | 16-6754 | BC-354 | 12-H6 | |
| L7 | Fil. Choke | 1217846 | | | | 1. 4 Microhenries |
| L8 | "A" Lead Choke | 1221077 | | | | 42 Microhenries |

# CHASSIS—BOTTOM VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## VIBRATOR

| ITEM No. | TYPE | INPUT VOLTS | FREQUENCY | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|---|---|
| | | | | DELCO PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | RADIART PART No. | |
| M1 | Interrupter | 12V | 115~ | 8555 | 6330 | G1602/G883 | 6330 | |

## FUSES

| ITEM No. | TYPE | RATING | REPLACEMENT DATA | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | DELCO PART No. | | LITTELFUSE PART No. | | BUSS PART No. | |
| | | | FUSE | HOLDER | FUSE | HOLDER | FUSE | HOLDER |
| M2 | SFE | 7½A | 455640 | | 30307.5 (7AG-7½) | | SFE 7½ | |

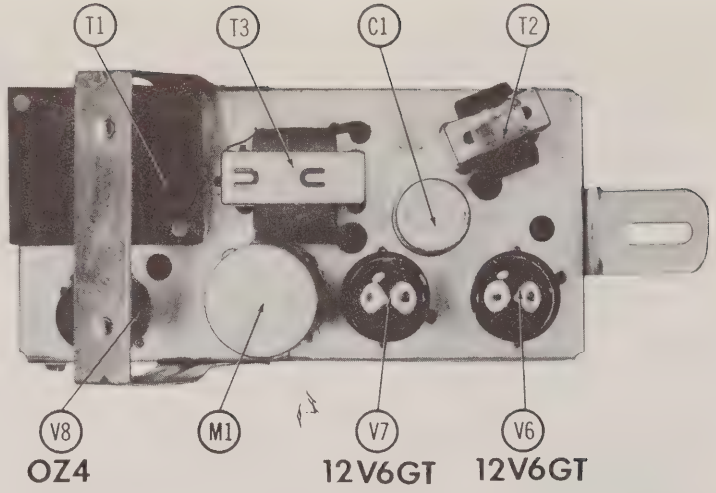
## MISCELLANEOUS

| ITEM No. | PART NAME | DELCO PART No. | NOTES |
|---|---|---|---|
| M3 | Dial Light | | #1891 |
| M4 | Spark Plate | 1220682 | |
| M5 | Switch | 7269146 | Sensitivity |
| M6 | Switch | 7263340 | Tuner Return |
| M7 | Switch | 7265300 | Station Selector |
| M8 | Relay | 1220326 | |
| M9 | Solenoid | 1220685 | |

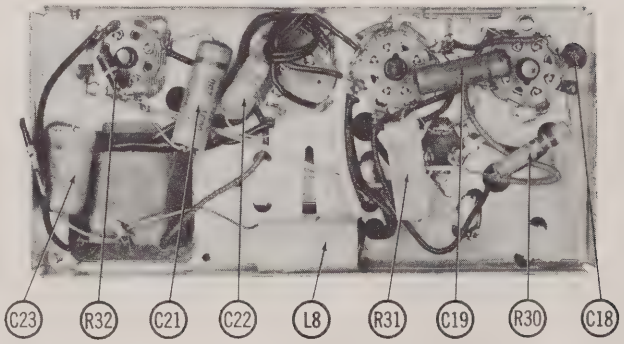
## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

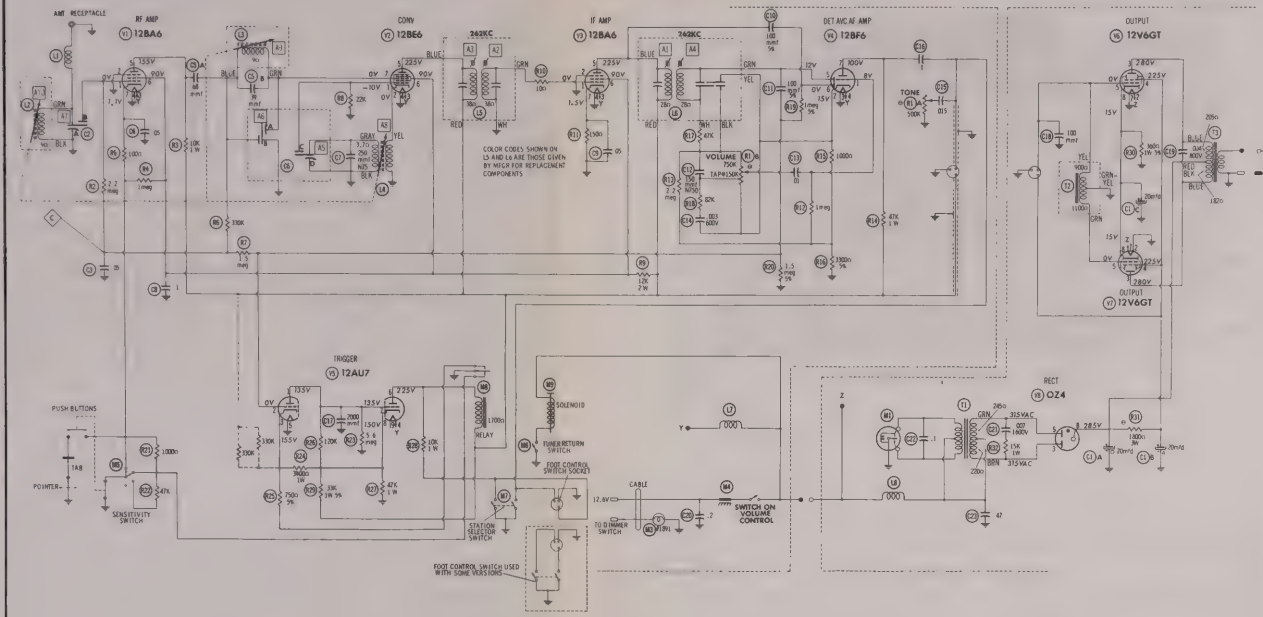
| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 523150 | Control - 2 Used |
| Knob | 523507 | Control - 2 Used |
| Knob | 5222248 | Sensitivity |
| Knob | 518915 | Tone |
| Dial Glass | 7263586 | |




POWER CHASSIS - TOP VIEW




POWER CHASSIS - BOTTOM VIEW




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12BA6 | 5.2Meg | 0Ω | 2.3Ω | 0Ω | ↑ 12K | ↑ 14K | 100Ω | | |
| V2 | 12BE6 | 22K | 9Ω | 2.3Ω | 0Ω | ↑ 1800Ω | ↑ 14K | 3.3Meg | | |
| V3 | 12BA6 | 48Ω | 0Ω | 2.3Ω | 0Ω | ↑ 1800Ω | ↑ 14K | 150Ω | | |
| V4 | 12BF6 | 1Meg | 4300Ω | 0Ω | 2.3Ω | 550K | 2.5Meg | ↑ 49K | | |
| V5 | 12AU7 | ↑ 130K | 1.5Meg | ↑ 35K | 2.3Ω | 0Ω | ↑ 3500Ω | ↑ 130K | ↑ 32K | 1Ω |
| V6 | 12V6GT | NC | 2.3Ω | ↑ 220Ω | ↑ 1800Ω | 900Ω | NC | 0Ω | 360Ω | |
| V7 | 12V6GT | TP | 0Ω | ↑ 1820Ω | ↑ 1800Ω | 1100Ω | TP | 2.3Ω | 360Ω | |
| V8 | 0Z4 | 0Ω | NC | 220Ω | NC | 240Ω | NC | TP | 20KMeg | |

↑ MEASURED FROM PIN 8 OF V8
TP TIE POINT
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom view.
3. Measured values are from socket pin to common negative
4. Battery voltage maintained at 12.6 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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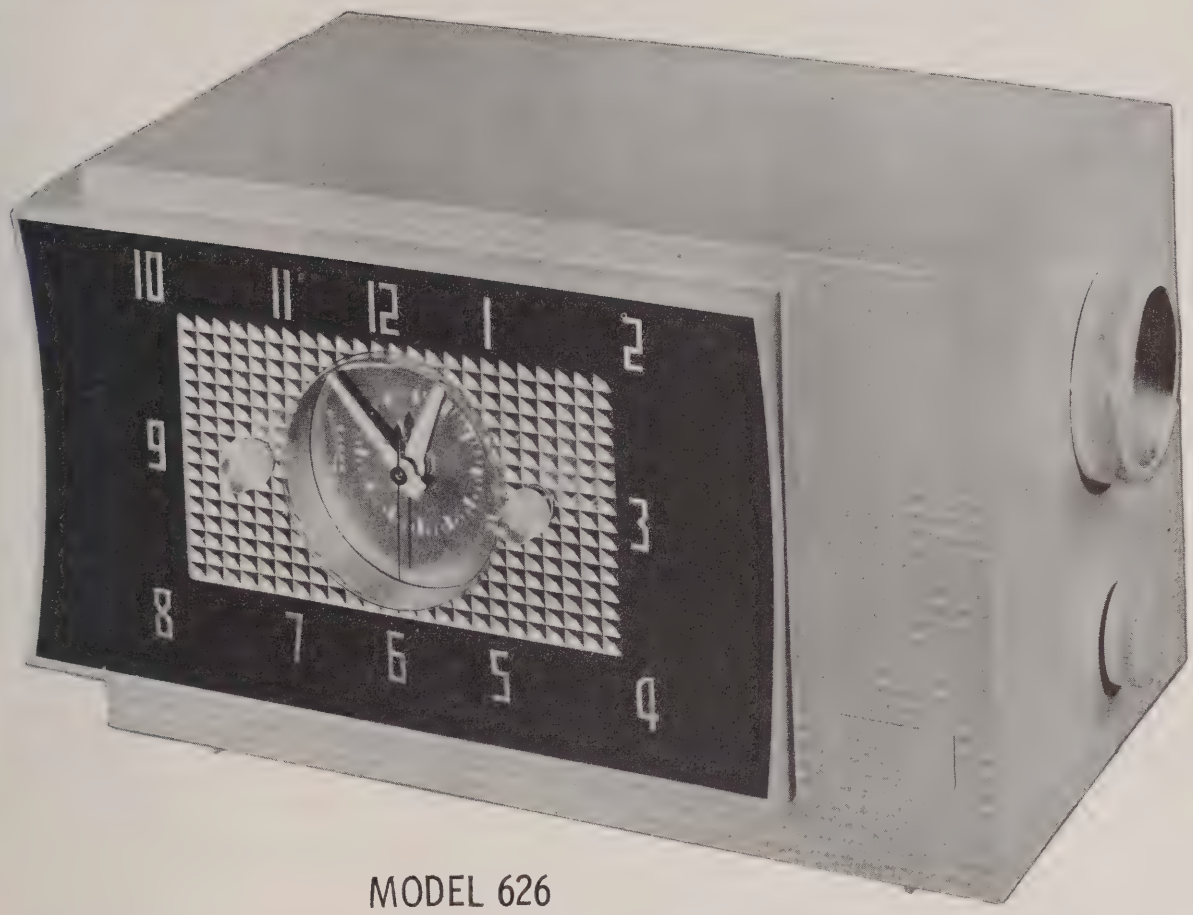
SONORA
MODELS 625, 626, 627



MODEL 626

SONORA
MODELS 625, 626, 627

| | |
|---|---|
| TRADE NAME | Sonora Models 625, 626, 627 |
| MANUFACTURER | Sonora Radio & Tel. Corp., 325 N. Hoyne Ave., Chicago, Illinois |
| TYPE SET | AC Operated AM Receiver With Electric Clock |
| TUBES (Five) | Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier |
| POWER SUPPLY | 110-120 Volts AC-60 Cycles — RATING .28 Amp. @ 117 Volts (27 Watts) |
| TUNING RANGE—BROADCAST | 535KC-1620KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .1MFD | High side to antenna stator lug on tuning gang. Low side to B-. | 455KC (400~ Mod.) | Tuning gang fully open. | Across voice coil. | A1, A2 A3, A4 | Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation. |
| 2. | | Loop | 1620KC | " | " | A5 | Fashion loop of several turns of wire and receiver. Adjust for maximum output. |
| 3. | | " | 1400KC | 1400KC | " | A6 | " |

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DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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# PARTS LIST AND DESCRIPTIONS

SONORA MODEL 625

## TUBES (GENERAL ELECTRIC, SYLVANIA)

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Converter | 12BE6 | |
| V2 | IF Amplifier | 12BA6 | |
| V3 | Det. -AVC-AF Amplifier | 12AV6 | |
| V4 | Output | 50C5 | |
| V5 | Rectifier | 35W4 | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | SONORA PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | 50 | 150 | R-1781 | PRS150V3050 | BBRD5315 | TCD497 | TMD-12 | MTD-301 | TVA-2450 |
| B | 30 | 150 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | SONORA PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C2 | .047 | 200 | R-1462 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C3 | .047 | 200 | R-1462 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C4 | 10000 | | N-9062 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C5 | 10000 | | N-9062 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C6 | .047 | 200 | R-1462 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | SONORA PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 1Meg | ½ | R1847 | B-70 ① | A47-1Meg-Z ① | Q13-137 ① | U53 | Volume, 47K Stop |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |

① Use 47K Resistor In Series With Right Hand Terminal; Viewed From Shaft End, Terminals Down.

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

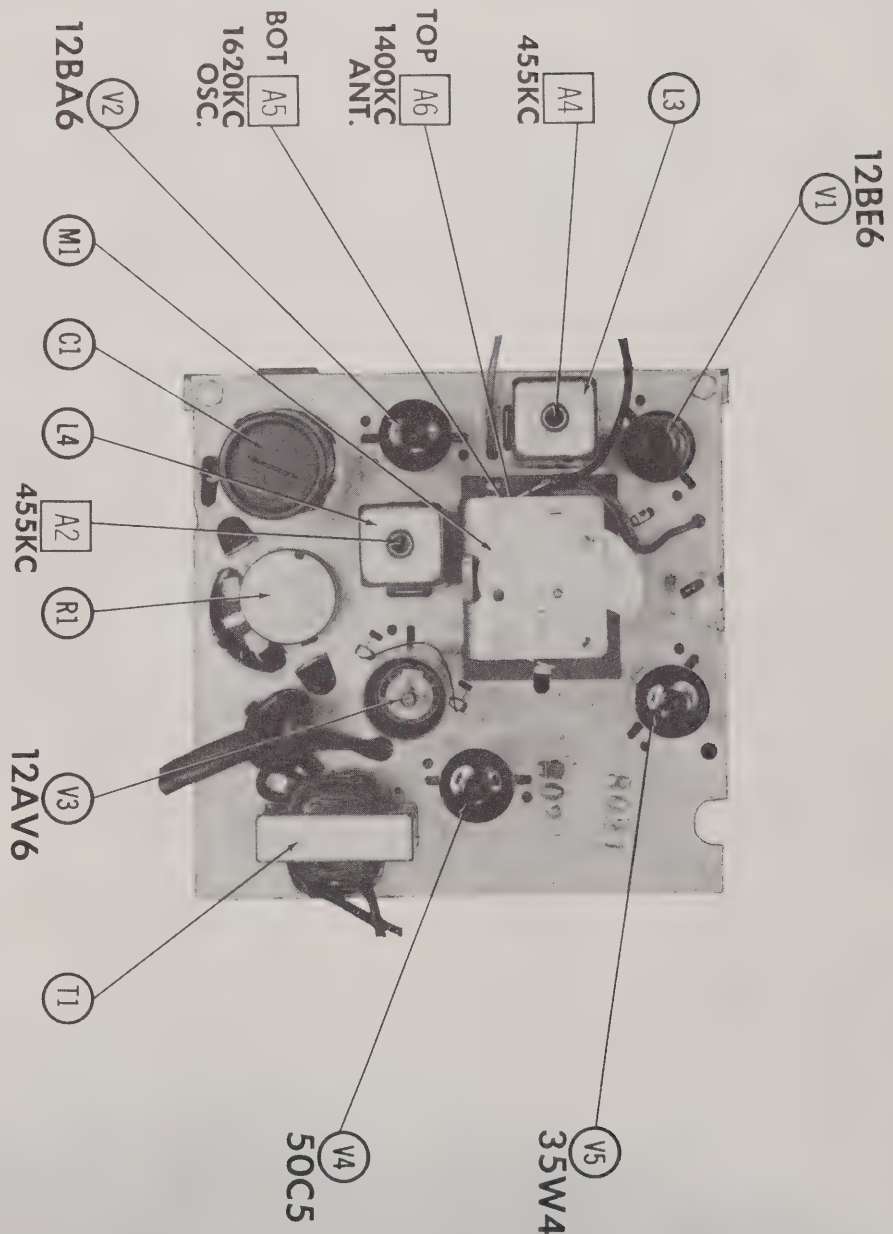
| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | SONORA PART No. | IRC PART No. | |
| R2 | 22K | | N-4025 | BTS-22K | |
| R3 | 1Meg | | N-1262 | BTS-1Meg | |
| R4 | 100Ω | | N-1615 | BTS-100 | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | SONORA PART No. | IRC PART No. | |
| R5 | 180Ω | | N-4067 | BTS-180 | |
| R6 | 1200Ω | 1 | N-4900 | BTA-1200 | |
| R7 | 22Ω | | N-4633 | BTS-22 | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | SONORA PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2700Ω | 3-4Ω | R-1841 | Z1101 ① | A-3025 ① | A-3332 ① | 26S58 ① | S-12X ① | ① Bend Ears Down. |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | SONORA PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | R-1478 | 4A07 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | SONORA PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Loop Antenna | R-2018 | | | | Includes Cabinet Back. |
| L2 | Osc. Coil | R-1777 | | | | |
| L3 | Input IF | R-1237 * | 16-6758 | BC-352 | 12-C1 | |
| L4 | Output IF | R-1237 * | 16-6758 | BC-353 | 12-C2 | |

* Alternate Part #R-1234.

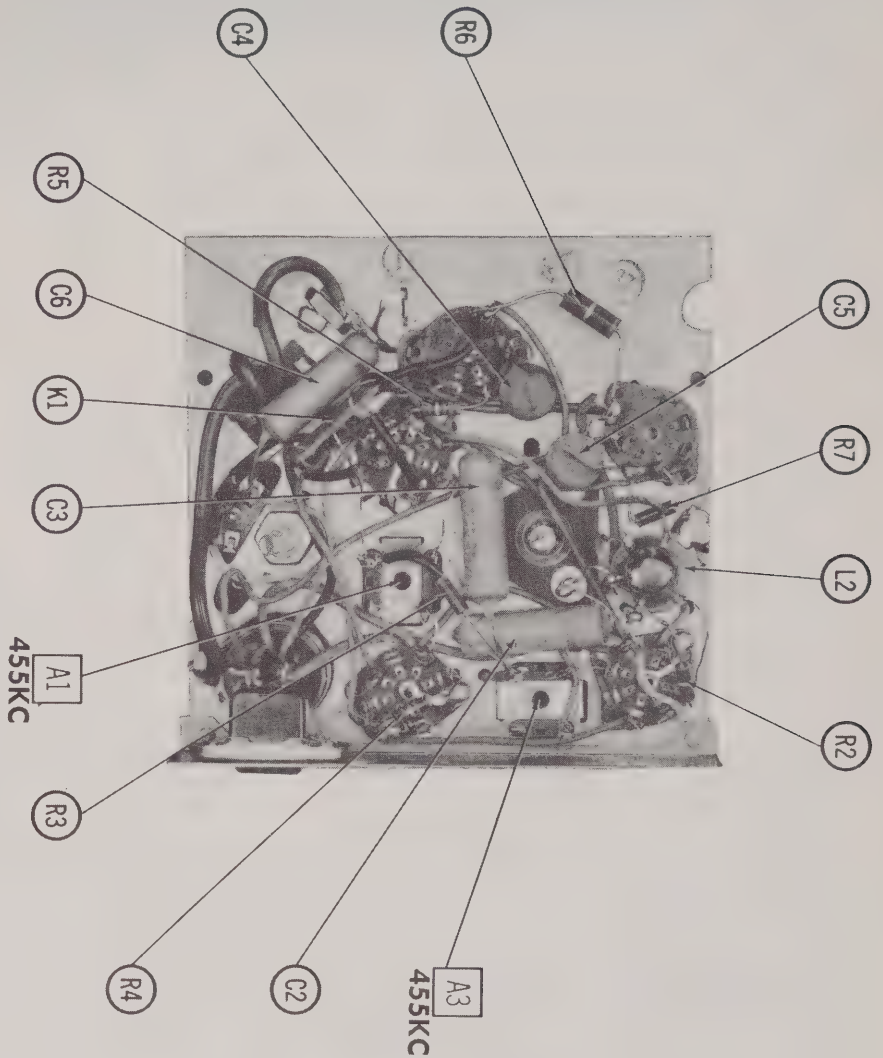
## COMPONENT COMBINATIONS

| ITEM No. | USE | DESCRIPTION | SONORA PART No. | REPLACEMENT DATA | |
|---|---|---|---|---|---|
| K1 | Det.-Audio Coup. Net. | 2000MMF, 220MMF, 250MMF, 5000MMF, 6.8Meg, 470K, 470K | R-1487 | Aerovox<br>Centralab<br>Cornell-Dubilier<br>Erie<br>Sprague | PA-113-1<br>PC-150<br>116TM1<br>1408-01<br>DT-5 |

## MISCELLANEOUS

| ITEM No. | PART NAME | SONORA PART No. | NOTES |
|---|---|---|---|
| M1 | Tuning Cap | R-1779 | 2 Gang (Ant. 15-258MMF, Osc. 27-125MMF). |

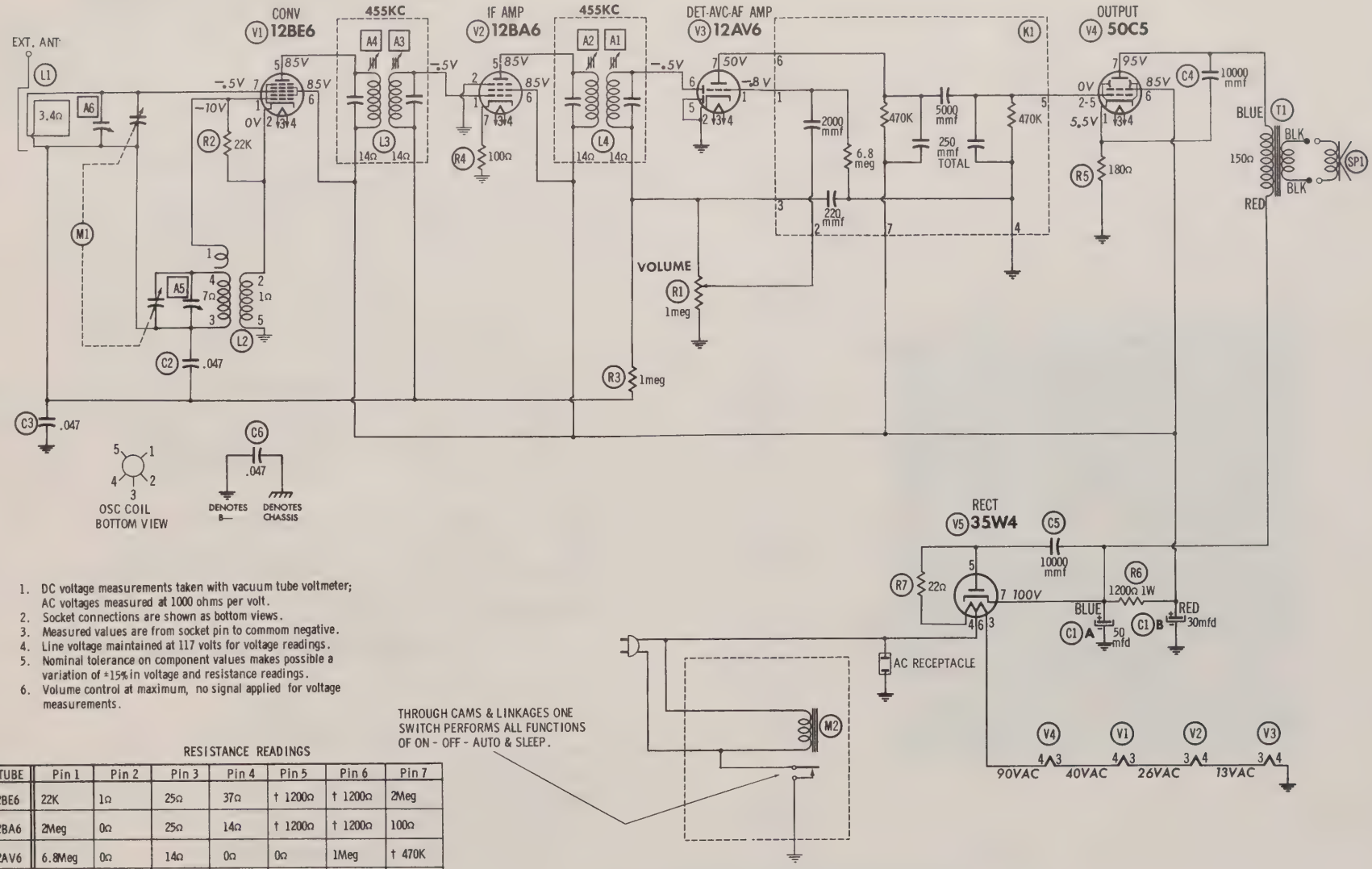
# CHASSIS—BOTTOM VIEW








SONORA MODEL 625




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 12BE6 | 22K | 1Ω | 25Ω | 37Ω | † 1200Ω | † 1200Ω | 2Meg |
| V2 | 12BA6 | 2Meg | 0Ω | 25Ω | 14Ω | † 1200Ω | † 1200Ω | 100Ω |
| V3 | 12AV6 | 6.8Meg | 0Ω | 14Ω | 0Ω | 0Ω | 1Meg | † 470K |
| V4 | 50C5 | 180Ω | 470K | 37Ω | 85Ω | 470K | † 1200Ω | † 150Ω |
| V5 | 35W4 | NC | NC | 85Ω | 120Ω | 143Ω | 117Ω | 20K (MIN) |

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

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373-12

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SYMPHONIC
MODELS R-1200, BR-1200

SYMPHONIC
MODELS R-1200, BR-1200

## GENERAL INFORMATION

The Symphonic "Electra-Tape" Models R-1200 and BR-1200 features fingertip operation for Fast Forward, Playback, Stop, Record and Rewind. The Symphonic Models R-1200 and BR-1200 are designed to record and playback two tracks of material on standard width recording tape (1/4"), which doubles the playing time of a standard 5" or 7" reel of tape with no loss of frequency response or quality. Recordings can be made from a radio, television receiver or phonograph, in addition to those made directly from the microphone. Recordings can be played back through the self-contained speakers or external speakers through use of the Auxiliary Speaker Jacks.

The Symphonic "Electra-Tape" Models R-1200 and BR-1200 have two tape speeds, 7 1/2" and 3 3/4" per second. Using both tracks, the recording time is as follows:

| Size Reel | Speed 3 3/4" | Speed 7 1/2" |
|---|---|---|
| 5" | 1 hour | 1/2 hour |
| 7" | 2 hours | 1 hour |

The Symphonic Models R-1200 and BR-1200 are designed to operate on 60 cycle, 110-120 volts, AC supply only.

SUPPLIED by:

SYMPHONIC
235 JERSEY AVENUE
NEW BRUNSWICK, N.J.

*This material compiled and published by*

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

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## GENERAL INFORMATION

Symphonic "Electra-Tape" Models R-1200 and BR-1200 are similar in basic design and construction. Both are twin track, two-speed tape recorders and playback units, operating at either 3 3/4 or 7 1/2 inches per second.

Both models are housed in portable cases. Model BR-1200 features a binaural playback head and a binaural pre-amplifier stage for playing "stereophonic" tapes. Both models have a 6" X 9" woofer speaker and a 3 1/2" tweeter speaker.

A binaural adaptor kit can be obtained to convert Model R-1200 for binaural playback operation. This kit, Model # R-1204, includes all material required for the conversion.

## SPECIFICATIONS

Weight —
34 lbs. approximately.

Size —
10" high, 15 1/2" wide, 14 3/4" depth.

Input Voltage —
117 volts, 60 cycles, A. C.

Input Power —
120 watts.

Power Cord —
10' long.

Microphone —
Extended fidelity 60 to 10,000 cycles ±5 db. Shielded 8' cable with shielded plug.

Tube Complement —
1-12AX7, 1-12AU7, 1-6SN7, 1-EL84, 1-5Y3GT.

Frequency Response —
40 to 12,000 c.p.s.

Record Bias and Erase —
75 KC. nominal.

Wow and Flutter —
Less than .4% RMS.

Power Output —
7 watts peak. 5 watts less than 3% Dist.

Speakers —
(1) 6" X 9" woofer, 3.16 mag.
(1) 3 1/2" tweeter, 1.47 mag. Alnico V.

Signal To Noise Ratio —
-45db.

Input Jacks —
(2) Microphone, Radio Phono, TV.

Output Jacks —
(2) External Speaker (3.2 ohms.)
External Amplifier (cathode follower 300 ohms impedance).

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## Push Buttons

Stop Button -

The "Stop" button should be depressed before each operation and when the machine is not in use.

Record Button -

Depress the "Record" button for recording a tape. The red "Safety" lever must be held to the right before the "Record" button can be depressed.

Play Button -

Depress the "Play" button for playing back a recording. Adjust, the "Volume" control to the desired level and adjust the "Tone" control for the most pleasing reproduction.

Rewind Button -

Depress the "Rewind" button for high speed rewind of the tape.

Forward Button -

Depress the "Forward" button for high speed forward. This button can be used to skip portions of tape in order to find a desired selection.

## Record Level Indicators

Distort Indicator -

The "Distort" lamp indicates when tape is being overloaded (surplus volume) while recording. Adjust the "Volume" control so that faint flashes occur at loudest sounds (peak output).

Normal Indicator -

The "Normal" lamp indicates correct recording level. Adjust the "Volume" control until the "Normal" lamp flashes regularly.

## Tape Index Timer

Set both the large and small dials of the timer to zero after threading a reel of tape. After each selection is recorded, note the timer readings for future reference. In this way, the timer can be used for locating a pre-recorded selection on the tape.

## Speed Control Button

The arrow on the speed control button points to the speed (inches per second) at which the tape is passing by the heads. Should a change in speed be desired, simply turn the speed control button with a coin. Insofar as quality of recording-reproduction is concerned, speed is an all-important factor. The higher the speed, generally, the greater will be the fidelity.

## Safety Lever

The safety lever locks the "Record" button to prevent accidental erasing. Push "S" lever to the right and hold while depressing the "Record" button.

## Pause Button

To stop the travel of the tape, while recording or playing, push the "Pause" button. Should you desire to lock the "Pause" button in position, push it toward the rear of the unit and move it to the right. The "Pause" button feature allows for the adjustment of recording volume before the tape is set in motion and also for noiseless momentary stops, to eliminate commercials when recording from a radio or TV set, plus lulls in conversation, etc.

## Monitor Switch

The "Monitor" switch is used should you desire to listen to a recording while it is being made. Also, the "Monitor" switch should be left in the "On" position should the unit be used as a phonograph amplifier or a public address system.

## Automatic Shut-Off Switch

The mechanism is automatically shut off unless tape is threaded in front of the plastic shut-off lever. Should tape break, or the supply reel become empty, the mechanism will shut off automatically and will remain so until the machine is rethreaded.

## Input Receptacles

Microphone Input Receptacle —

This input is for the microphone supplied with the recorder. The impedance of the circuit is high and a matching transformer must be used with a low impedance microphone.

Radio-Phono Input Receptacle —

This input is used when recording from a radio, tuner, TV, or directly from the cartridge of a phonograph (crystal or ceramic type).

The input voltage required at this point is approximately one volt which can be obtained by connecting directly across the speaker voice coil terminals of a radio or TV set or from the outlet that is provided in most tuners.

## Output Receptacles

External Speaker Output Receptacle —

Any additional speaker or speakers of 3.2 ohms impedance can be plugged into this receptacle.

Use a regular type phone plug with lamp or "zip" cord type wire. The internal speakers are automatically disconnected when the plug is inserted.

External Amp. Output Receptacle —

This outlet is used to connect the preamplifier in the recorder to an external amplifier.

The output is approximately one volt at 300 ohms impedance. This low impedance allows the use of a cable up to 75' long. Use a regular shielded type phone plug with shielded cable.

When using this outlet, the volume control in the recorder is still in use but the tone control is not effective.

Binaural Output Receptacle — Model BR-1200 —

Plug the shielded cable supplied with Model BR-1200 into this receptacle and into the input of the Model R-1203 high fidelity speaker and amplifier system, or into the input of your home music system. The volume control of the external amplifier and speaker system will control the loudness of the signal which is picked up by the binaural head, while the volume control on the recorder controls the signal that is picked up by the play-record head.

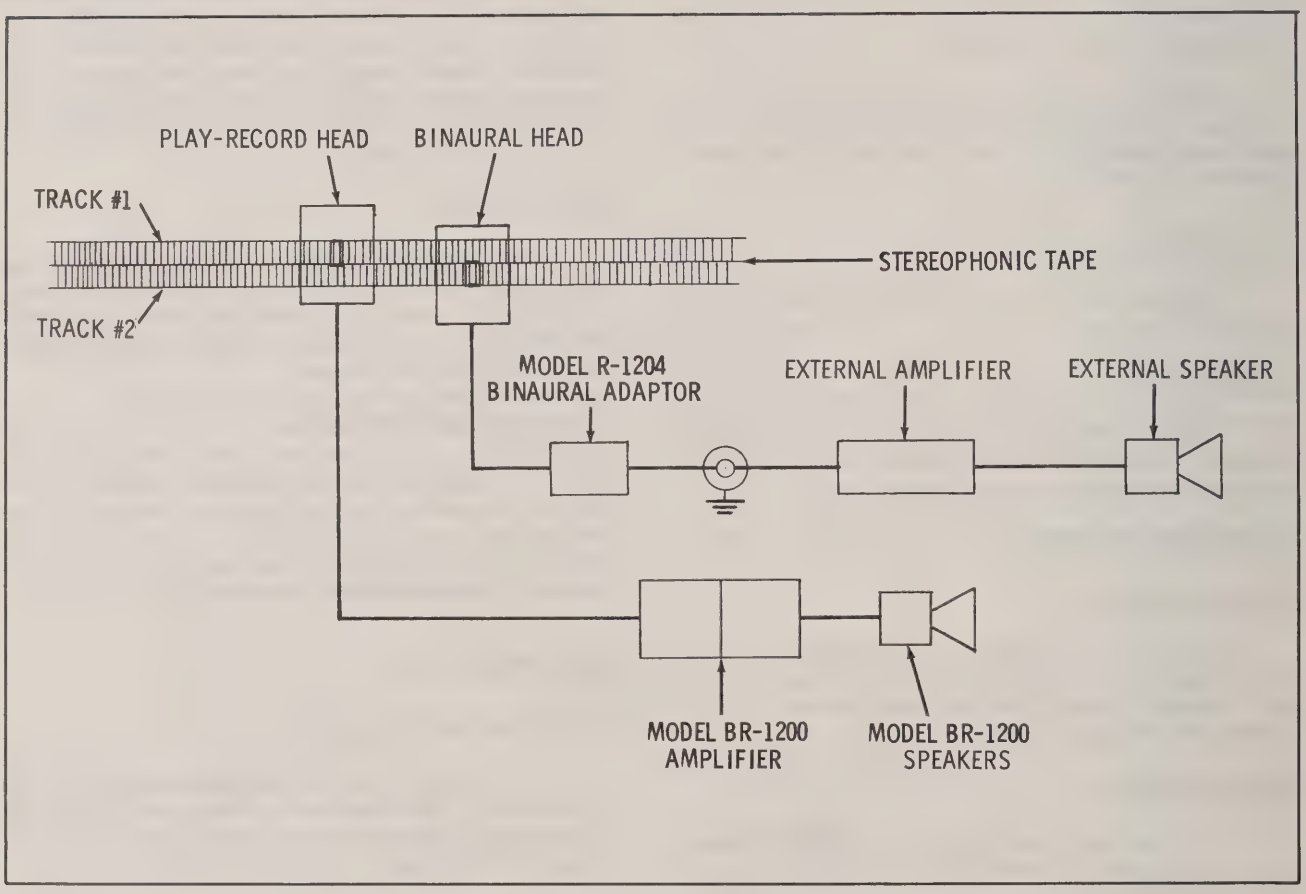


Figure 1. Model BR-1200 Two-Channel Stereophonic System.

## OPERATING INSTRUCTIONS

Threading The Tape -

With "Stop" button depressed, place empty reel on right hand (take-up) spindle. Place a full reel of tape on left hand (supply) spindle, so that it unwinds counter-clockwise. Thread tape, (glossy side out) following threading line (embossed in plastic escutcheon), straight through the slot in the covers and in front of the plastic "Automatic Shut-off Lever." See Figure 2. Place tape in front of chrome plated tape guide and insert free end of tape into hub slot of right-hand reel. Wind right-hand reel one or two turns counter-clockwise to take up slack between reels.

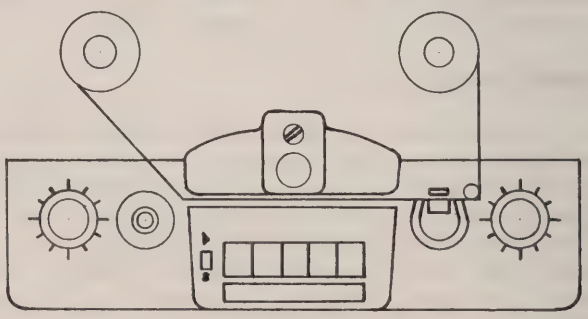

Figure 2

How to Record -

1. Insert the line cord into a 117 volt, 60 cycle, AC outlet and connect microphone or any other type of input.

2. Switch the recorder on by turning the "Bass-Treble" control clockwise.

3. Push the "Pause" button toward rear of unit and lock to the right.

4. Hold the red "Safety" button (marked S) to the right and depress the "Record" button.

5. Adjust "Volume" control so that faint flashes register on the "Distort" light at loudest sounds (peak output) and "Normal" light flashes regularly.

6. Set "Tape Index-Timer" dials to zero, noting on tape carton the reading at the beginning and end of recording.

7. Push "Pause" button to left to begin recording.

NOTE: These recorders have automatic built-in erase which operates only when in "Record" position and assures a clean tape for new recordings.

8. Depress the "Stop" button when recording is finished. To rewind tape depress the "Rewind" button. The mechanism will shut off automatically when rewinding is completed.

How-To Play Recordings -

1. Thread tape as outlined under "Threading the Tape".

2. Depress the "Play" button and adjust the "Volume" control and "Tone" control for desired tonal quality.

3. Depress the "Stop" button when finished.

How To Play Stereophonic Tapes — Model BR-1200 -

1. Thread "Stereophonic" tape as described under "Threading The Tape".

2. Connect "Binaural" adaptor to external amplifier and associated speaker by means of shielded cable.

3. No hard and fast rule can be set for the placing of the units since much depends on the room. Generally, the units are best placed not closer than 5 feet nor more than 10 feet apart. They should be placed where they sound best to you; your own ear is the best judge.

4. After switching both units on, depress the "Play" button.

5. The volume control of the home music systems will control the loudness of the signal which is picked up by the binaural head, while the volume control on the recorder controls the signal that is picked up by the play-record head. In volume level adjusting, try to keep the level balance such that sounds seem to come from between the speakers.

Dual Track Recording -

These Electra-Tape recorders are designed so that only one-half the tape width is recorded at one time. This permits dual track recordings to be made in the following manner.

1. After a reel of tape has been recorded, a second track may be recorded on the same reel (without rewinding) by removing the full reel from the right hand spindle, turning it over, then placing it on the left hand spindle. Place the empty reel on the right hand spindle.

2. Properly thread the tape and proceed with the recording as previously described.

3. After the second track has been recorded, the first track is ready to be played, without rewinding, by changing the reels as described in Step #1 above.

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## MECHANICAL ADJUSTMENTS

Head-Bar Bracket Adjustment -

Adjust head bar bracket (33) so that head bar (36) moves freely without binding. If bracket is too loose, pressure roller (53) will not press against capstan evenly causing flutter or the tape to climb.

Pressure Roller Alignment -

The pressure roller stud must be parallel with the capstan or tape will creep up or down on the capstan. As a check, remove "C" washer (51) and raise pressure roller (53) slightly and depress the "Play" button. If pressure roller raises or lowers, straighten stud by using tool #2-B-132 or by slipping a close fitting sleeve over the stud.

Pressure Roller Pressure Adjustment -

The pressure roller pressure should be from 2 1/2 to 3 1/2 pounds against the capstan in "Record" and "Play" position. To adjust pressure, bend button levers (88) where head bar activating springs (71 and 73) are hooked. To decrease pressure, bend tab in; to increase pressure, bend tab out.

Stop Adjustment -

Bend stop button lever (88), where brake activating hook (72) connects, so that brakes release reel disks when another button is depressed. When "Stop" button is depressed, bell crank (127) must disengage capstan idler (120) from the motor shaft and from the flywheel and capstan assembly (143).

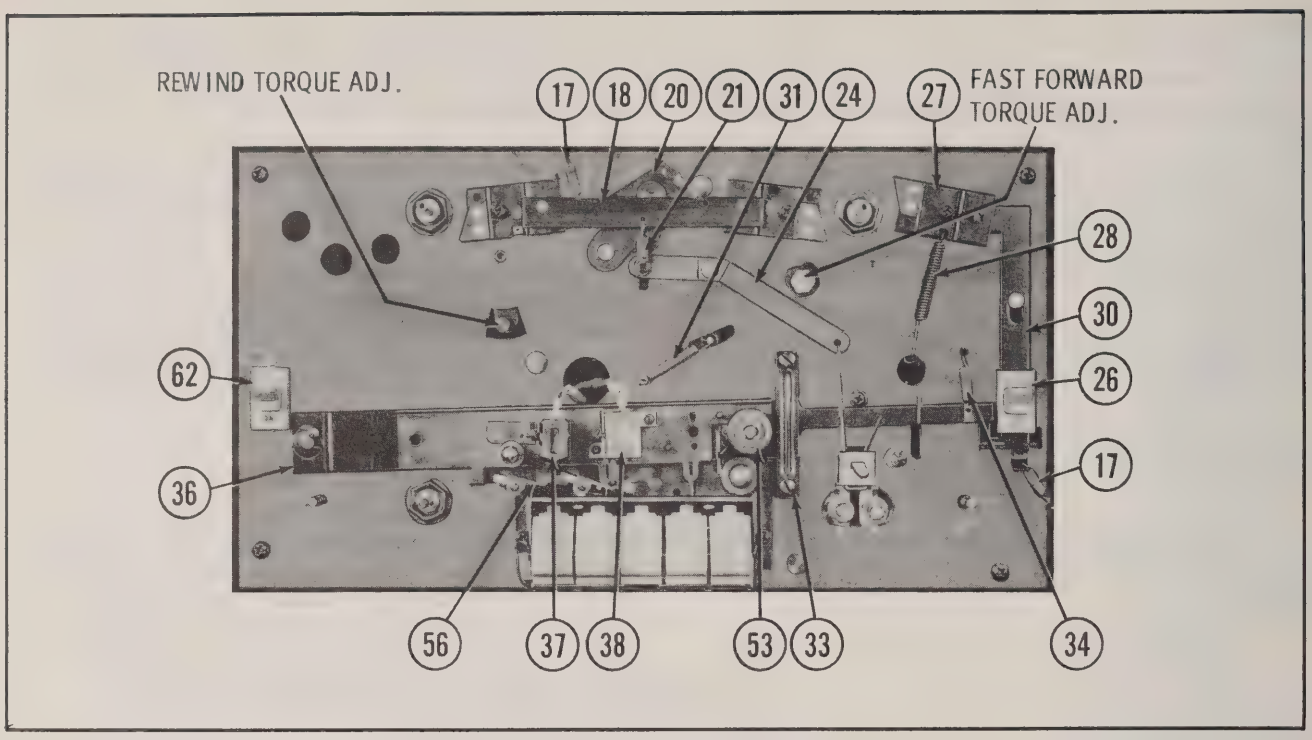


Figure 3. Top View Of Model R-1200 Tape Transport Mechanism.

Play and Record Torque Adjustment -

The takeup torque in "Play" and "Record" should be 1 1/2 to 3 ounces measured 2 3/4 inches from the center of the take-up reel. Using a pair of needle nosed pliers, bend take-up actuator (112) at point "A" on exploded view, shortening or lengthening to increase or decrease torque.

Fast Forward Torque Adjustment -

The fast forward torque must be 5 to 7 ounces measured 2 3/4 inches from the center of the take-up reel. To adjust, insert a 3/8" Spintite through the hole provided in the baseplate (see Figure 3). Turn the eccentric mounted tension pulley (123) counter-clockwise to increase torque or clockwise to decrease

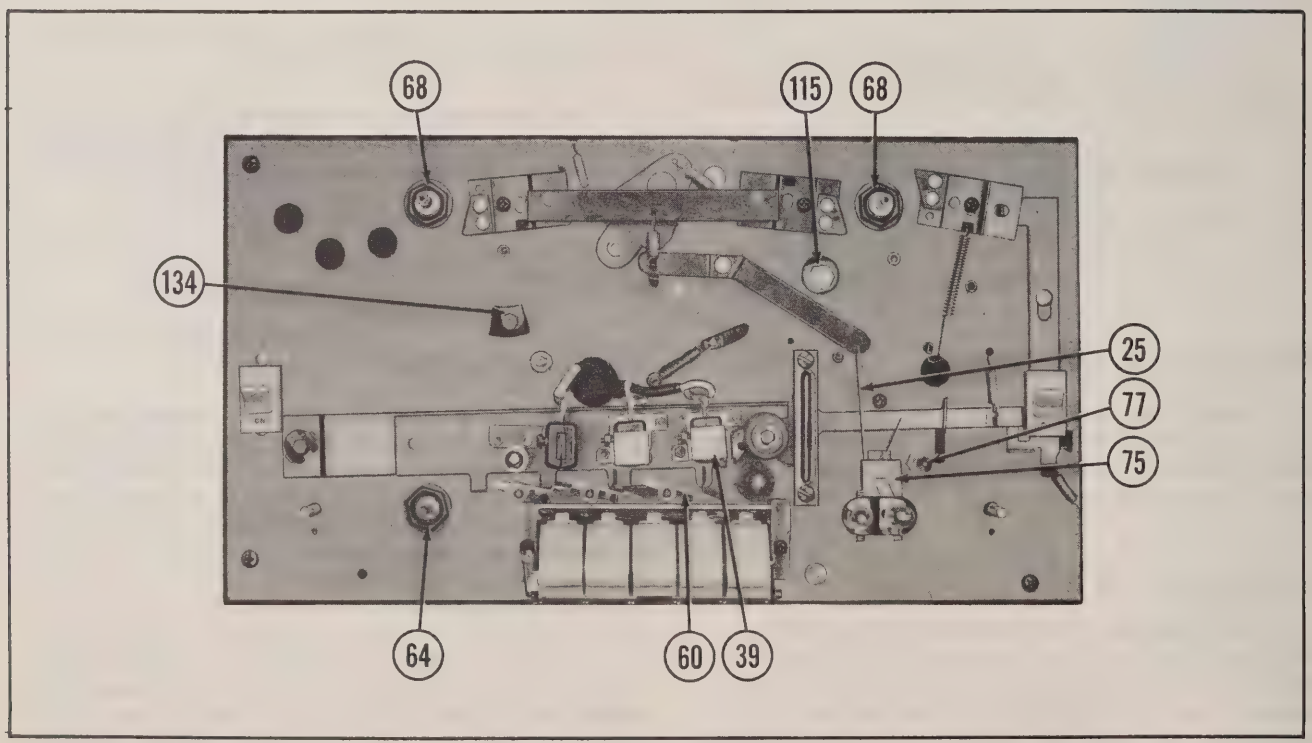


Figure 4. Top View Of Model BR-1200 Tape Transport Mechanism.

torque, making sure not to exceed maximum travel of the eccentric.

Rewind Torque Adjustment -

The rewind torque should be 2 1/2 to 4 1/2 ounces measured 2 3/4 inches from the center of the rewind reel. If torque is low, make sure rewind driver (139) is not skidding on take-up driver (137). Clean drivers and rewind belt (140) of any oil or grease. If cleaning does not correct the low torque, adjustment can be made by turning the eccentric mounted stud on the rewind arm (see **Figure 3**).

Pause Brake Adjustment -

With tape on machine and "Play" button depressed, bend tab (point "B" on exploded view) on pause brake lever (30) so that right hand reel stops and tape drive releases simultaneously.

Play-Record Head Alignment Adjustment —
Models R-1200 & BR-1200 (Refer to Figure 5) —

It is very important that the play-record head (38) be lined up perfectly with the tape. If it is not, low output, loss of high frequencies, or track overlap may result. Adjust play-record head (38) as follows:

1. Head Height: The top of the play-record head pole pieces must be set even with the top edge of the tape. To make this adjustment, thread tape on the recorder and loosen the two hex. nuts (42) on the side of the play-record head. After the head height has been adjusted, tighten the two hex. nuts (42).

2. Azimuth Alignment: To make this adjustment, obtain a standard alignment tape on which a recorded signal of 5000 cycles per second is available.

Connect an output meter or a sensitive A.C. voltmeter across the speaker voice coil terminals. While playing back the 5000 cycle signal, pivot play-record head (42), by turning hex. nut (45), until maximum amplitude on meter is achieved.

Erase Head Adjustment —
Models R-1200 & BR-1200 (Refer to Figure 5) —

The erase head (37) should be adjusted so that the pole pieces are approximately .005" above the top edge of the tape. Although not too critical, the erase head should be as near perpendicular to the tape as possible

Binaural Head Alignment Adjustment —
Model BR-1200 (Refer to Figure 5) —

1. Head Height: The bottom of the binaural head pole pieces must be set even with the bottom edge of the tape. To check this adjustment, remove the binaural pressure pad arm assembly and thread tape on the recorder. Depress the "Play" button and with the aid of a small mirror observe the position of the pole pieces. If adjustment is required, loosen the two hex. nuts (43) on the side of the binaural head (39). After adjustment is made, tighten the hex. nuts.

2. Azimuth Alignment: To make this adjustment, obtain a standard full-track alignment tape on which a recorded signal of 5000 cycles per second is available.

Connect an output meter or a sensitive A.C. voltmeter across the binaural output jack. While playing back the 5000 cycle signal pivot the binaural head (39), by turning hex. nut (46), until maximum amplitude on meter is achieved.



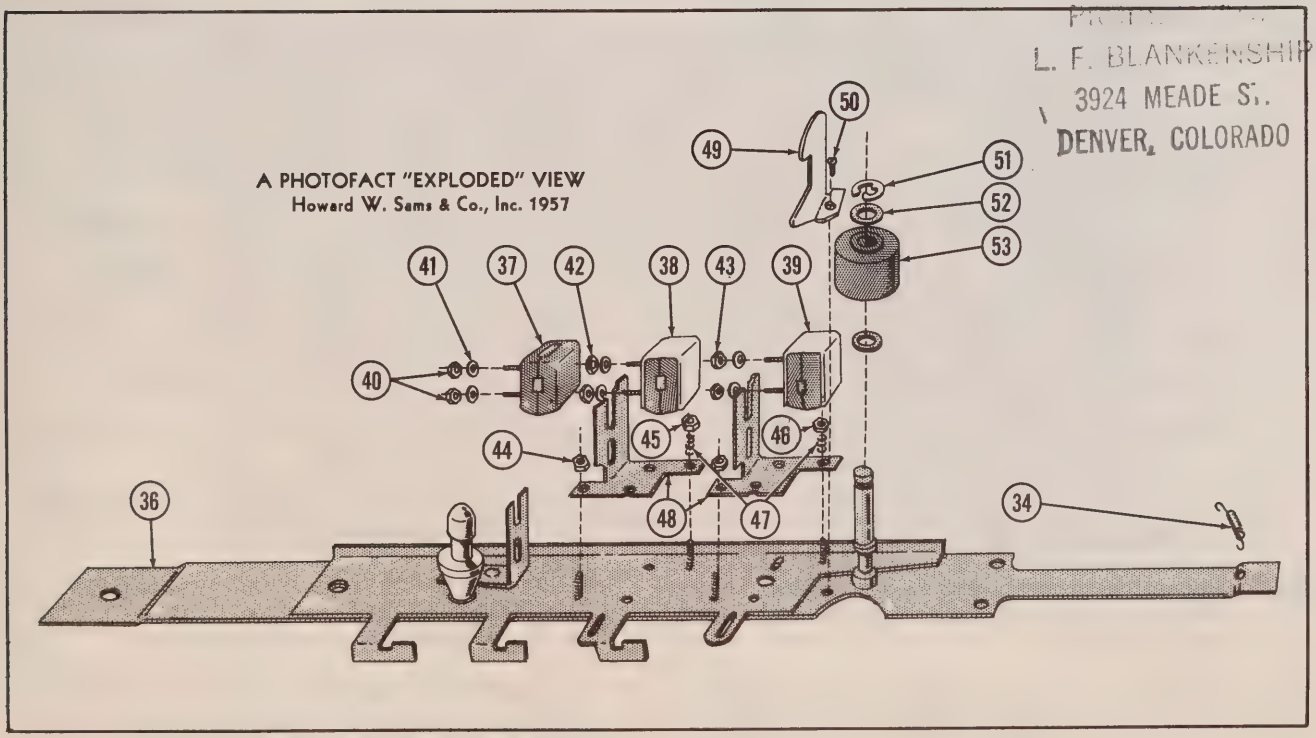


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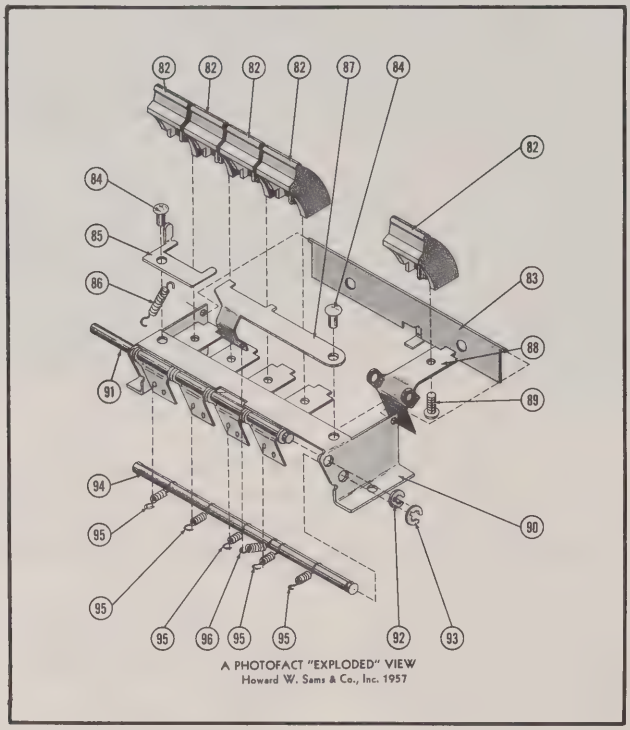
Figure 5. Exploded View Of Head Bar Assembly.

## ELECTRICAL ADJUSTMENTS

Hum Balance Adjustment

To adjust, place "Volume" and "Tone" controls at maximum and set hum balance control (R3) for minimum hum. Try line cord plug both ways.

The hum balance control (R3) is located toward the right rear corner of the amplifier chassis. Adjustment can be make through a hole on top of the chassis or from the underside by removing the amplifier bottom plate.




Exploded View Of Control Button Assembly.

## LUBRICATION

Lubricants applied at time of manufacture are sufficient to last for a long period of time, but in case parts are replaced, or approximately once a year, lubricate as follows:

Apply S. A. E. #5 Motor Oil to:

1. Both capstan bearings. To oil capstan bearings, place one small drop of oil on each bearing. CAUTION: Be sure no oil is on the portion of capstan extending above baseplate.
2. Tension pulley (123) bearings.
3. Reel disc bearings (101).
4. Rewind driver (139) bearing.
5. Capstan idler (120) bearing.
6. Take-up driver (137) bearing.
7. Pressure roller (53) bearing.

NOTE: When oiling any bearing in which a rubber part is mounted, or part using a belt, apply only one small drop of oil.

NOTE: Oil and grease must be kept off all rubber idlers, belts and periphery of flywheel and off parts that might transfer oil or grease to them.

Apply Trojan "H2" Grease to:

1. Between brake arm (18) and brake shoes.
2. Between brake shoes and baseplate.
3. Between rewind arm (134) and baseplate.
4. Under head bar (36) pivot bosses.
5. Top of head bar (36) above R. H. bosses.
6. Between take-up bar (115) and baseplate.
7. Between pause brake lever (30) and baseplate.
8. Between bell crank (127) and baseplate.
9. Latch bar (83) on cam side where button levers (88) make contact.
10. Latch bar (83) and button housing (90) pivot holes.
11. Brake rod (128) ends at baseplate holes.
12. Rewind rod (133) at baseplate hole.
13. Fast forward rod (110) at take-up bar (115) slot.
14. Holes in baseplate where amplifier switch extensions slide.

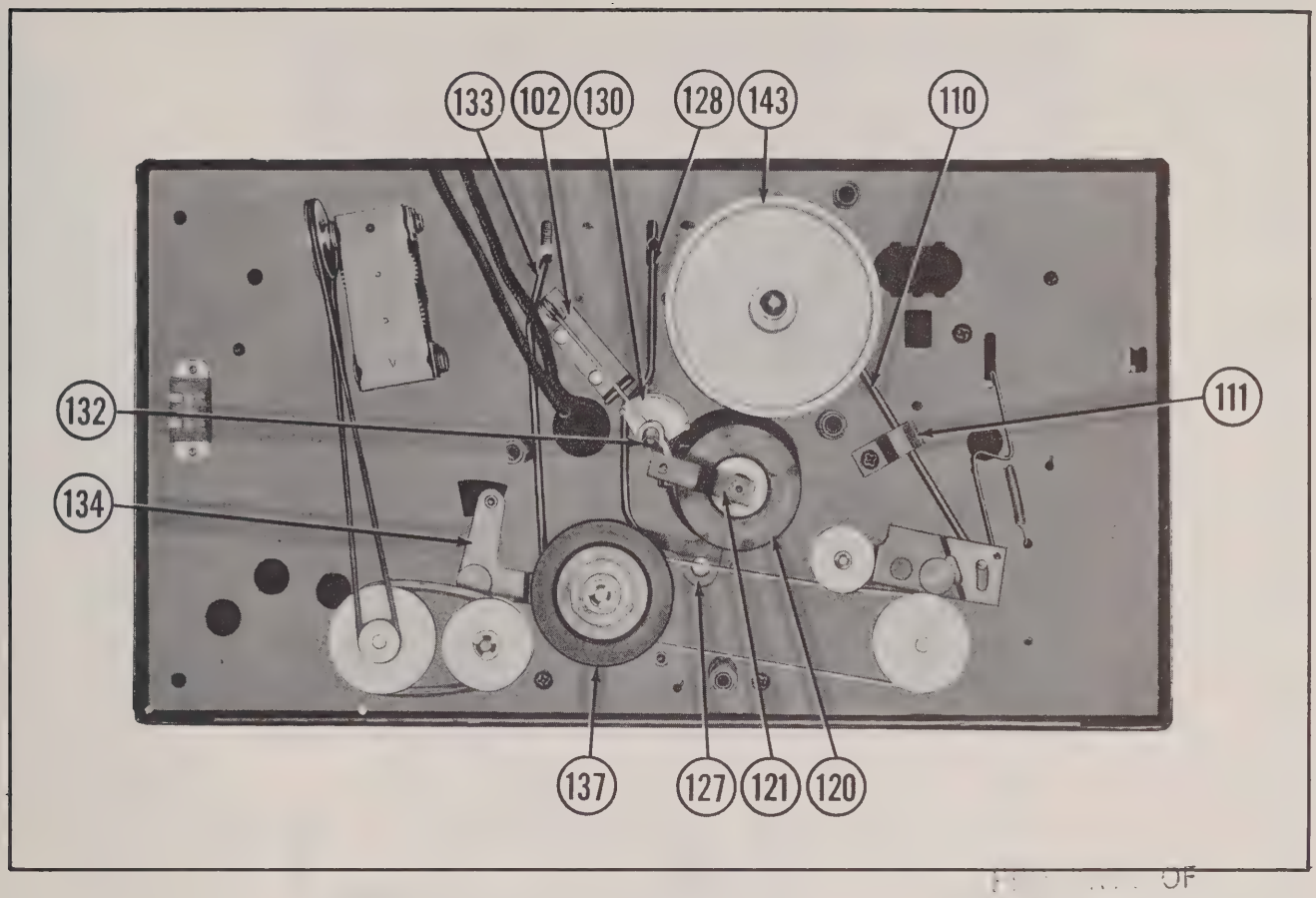



Figure 6

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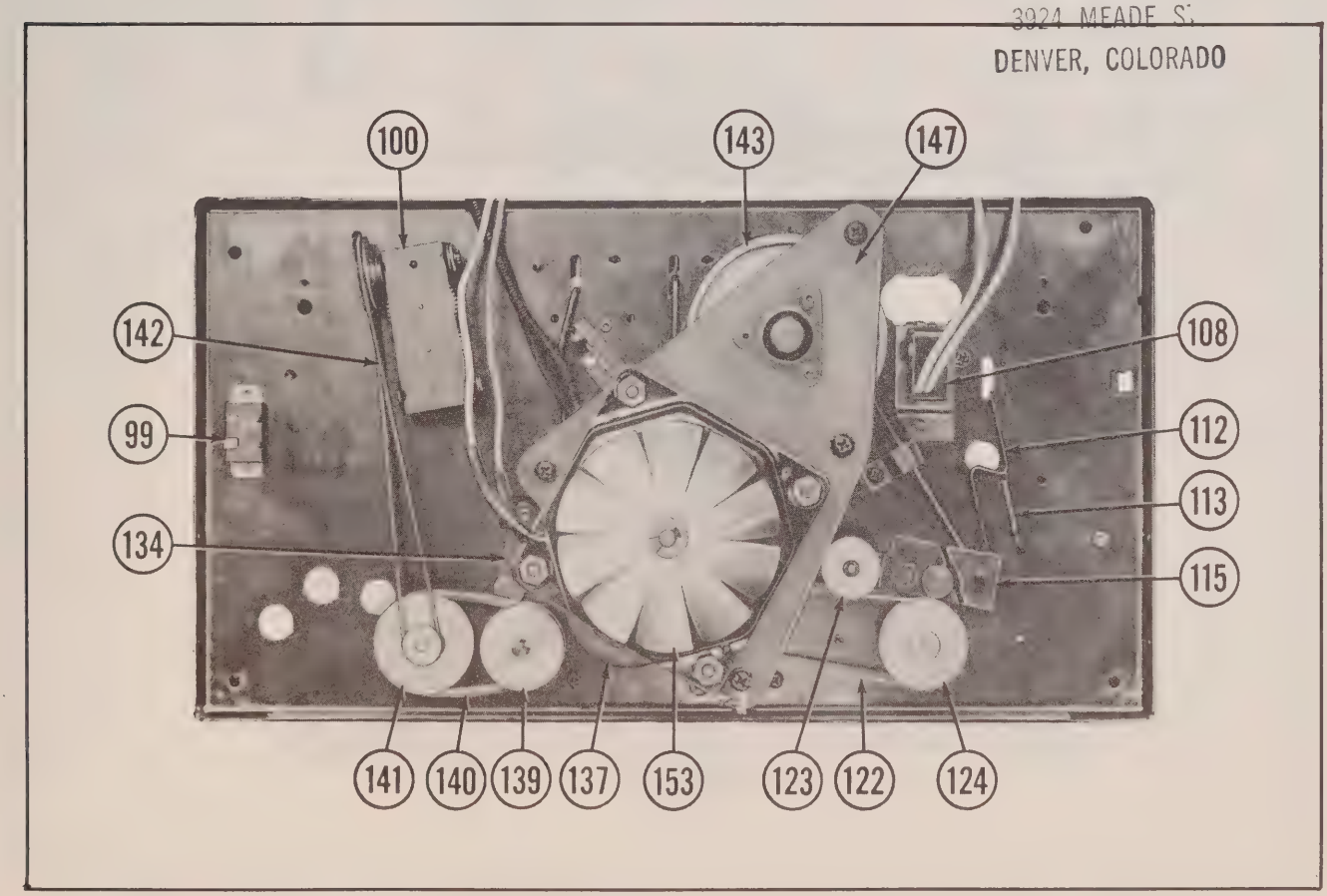


Figure 7

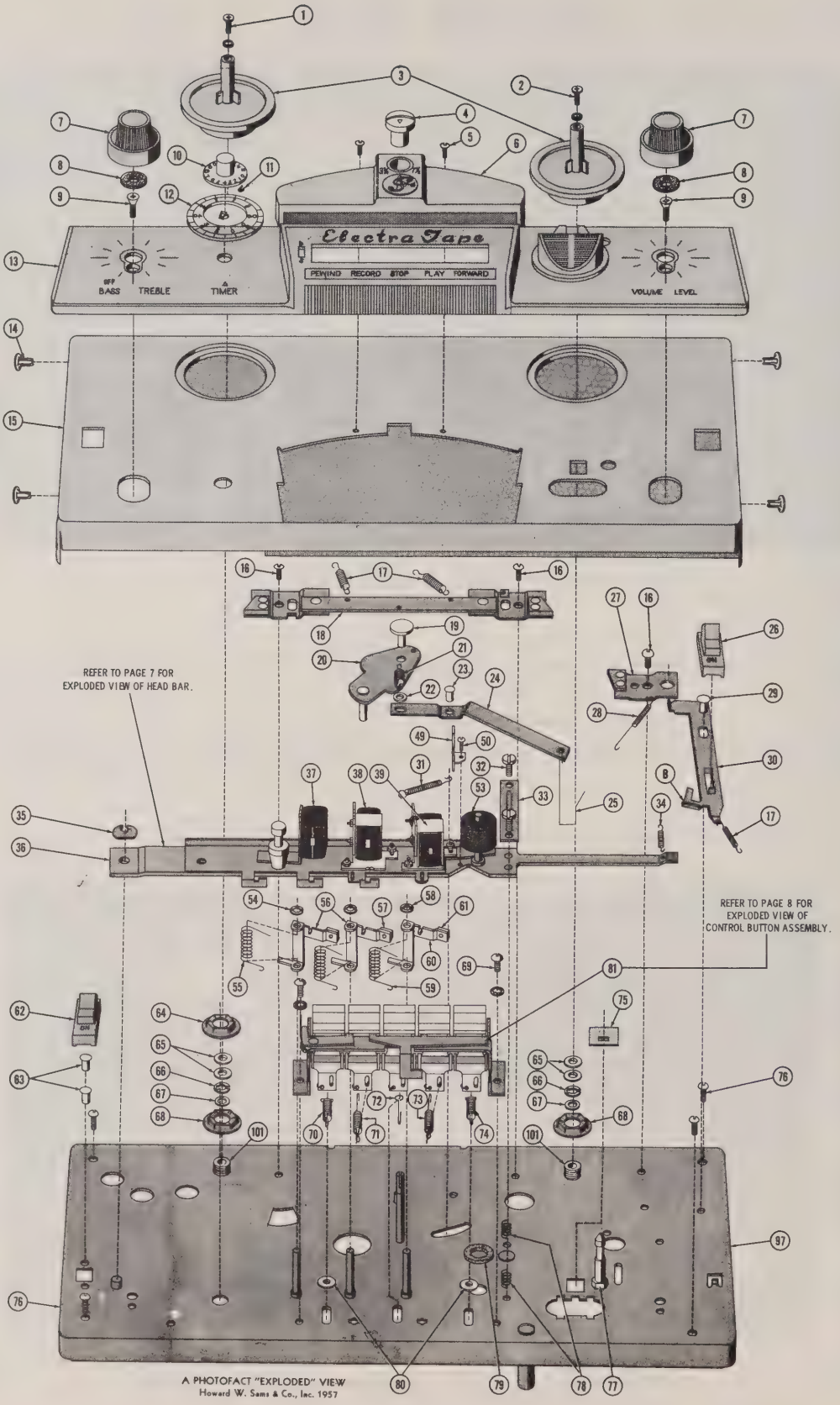
Electra Tape
REWIND RECORD STOP PLAY FORWARD
OFF BASS TREBLE
TIMER
VOLUME LEVEL
REFER TO PAGE 7 FOR EXPLODED VIEW OF HEAD BAR.
REFER TO PAGE 8 FOR EXPLODED VIEW OF CONTROL BUTTON ASSEMBLY.
A PHOTOFACT "EXPLODED" VIEW
Howard W. Sams & Co., Inc. 1957

Figure 8A. Exploded View Of Parts Above Baseplate.

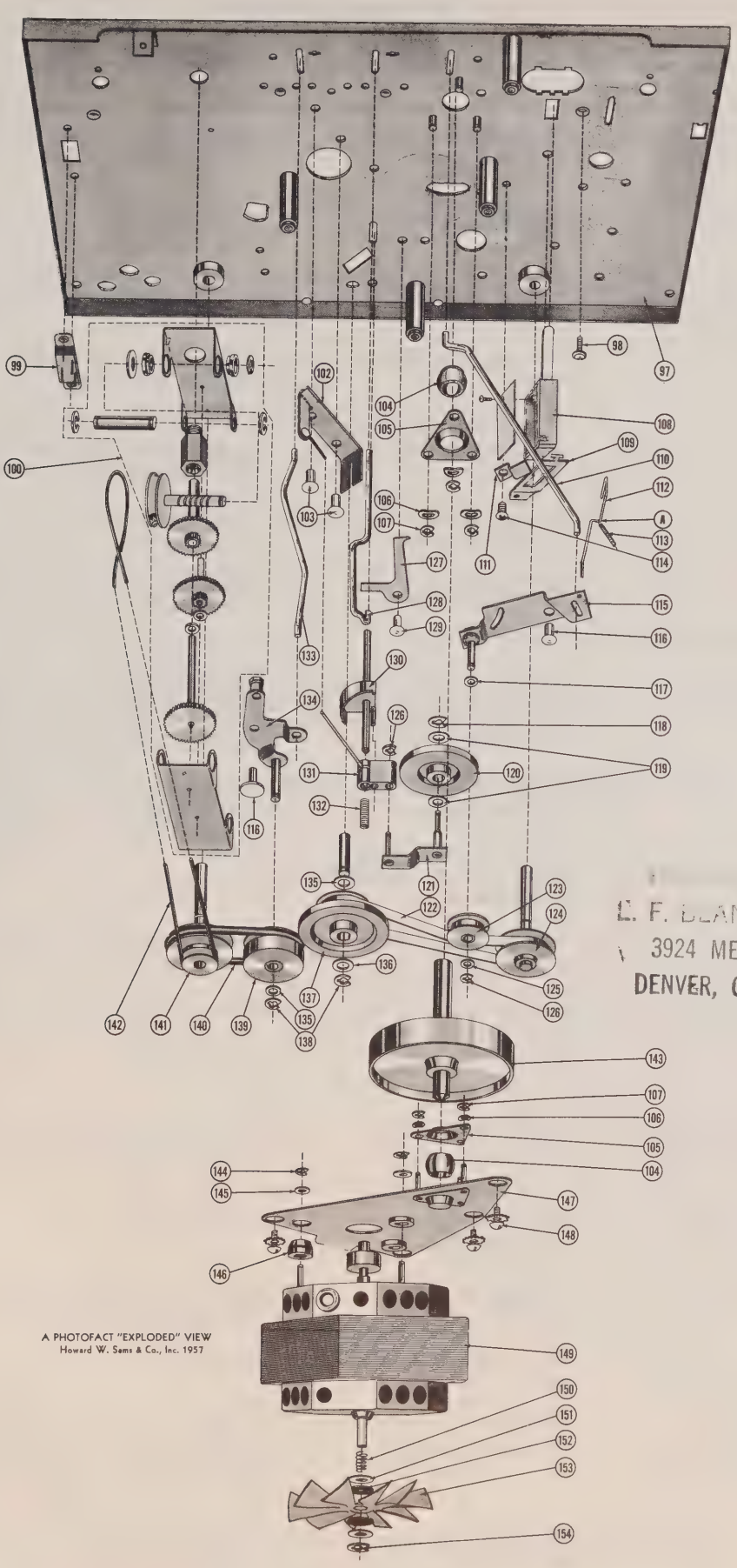


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Figure 8B. Exploded View Of Parts Below Baseplate.

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| Take-up Reel does not revolve in play or record position. | 1. Pause Brake on, or sticking. | 1. Release pause brake; check that pause brake lever (30) is free and releases completely. |
| | 2. Brakes (18) not releasing properly. | 2. Check that brakes (18) are releasing completely, if not, adjust button lever (88) on stop button. |
| | 3. Take-up belt (122) worn. | 3. Replace worn or stretched belt. |
| | 4. Take-up belt (122) off pulleys. | 4. Pulleys must be aligned correctly or belt will continue to slip off. |
| | 5. Capstan idler (120) not engaging flywheel. | 5. Check that speed change button is in detent completely; also check that bell crank (127) is releasing the capstan idler (120). |
| | 6. Speed change not in detent completely. | 6. Turn button to proper speed. |
| | 7. Tension pulley (123) not engaging take-up belt. | 7. Check that take up arm (115) is not binding on baseplate, or take up rod (110). |
| | 8. Pressure roller (53) applying too much pressure against capstan, stalling motor. | 8. Adjust button lever (88) on play and/or record buttons so the pressure roller applies from 2 1/2 to 3 1/2 lbs. pressure on the capstan. (See "Mechanical Adjustments"). |
| | 9. Tension pulley (123) not adjusted properly. | 9. Tension pulley must be adjusted properly. (See "Mechanical Adjustments"). |
| | 10. Head bar activating springs (71 or 73) off or broken. | 10. Replace. |
| | 11. Take-up bar actuator not adjusted properly. | 11. See "Mechanical Adjustments". |
| | 12. Take-up driver (137) not engaging motor shaft. | 12. Take-up arm (20) must operate freely. |
| Take-up Reel does not revolve in Forward Position. | 1. Button lever (88) not adjusted properly. | 1. Button lever can be adjusted to make small deviations in torque (See No. 5). |
| | 2. Activating Spring (21) loose or broken. | 2. Replace. |
| | 3. Take-up belt (122) off pulleys. | 3. Replace (See "Take-up Reel does not revolve in Play or Record position"). |
| | 4. Take-up belt (122) worn. | 4. Replace. |
| | 5. Tension pulley (123) not adjusted properly. | 5. In forward position, tension pulley should be adjusted so there is 5 to 7 ozs. of torque approximately 2 3/4 in. from the center of the reel. See "Mechanical Adjustments". |
| | 6. Brake sticking on supply reel disc. | 6. Check that brake return springs are releasing brakes. |
| | 7. Too much friction in counter (100). | 7. Counter should turn freely without binding. |

| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 8. Motor stalling. | 8. Check that tension pulley (123) is adjusted properly. (See No. 5). |
| | 9. Tension pulley (123) not engaging take-up belt. | 9. Check that take up arm (115) is not binding on base-plate or take-up rod (110). |
| Reels do not stop when stop button is depressed. | 1. Button lever (88) not adjusted properly. | 1. Button lever must be adjusted to release the brakes completely when another button is pushed. |
| | 2. Brake activating hook (72) or spring (21) loose or broken. | 2. Replace. |
| | 3. Brake Assembly binding. | 3. Check to see if brake assembly operates freely. |
| | 4. Tension pulley not adjusted properly. | 4. (See "Take up Reel does not revolve in Forward Position"). |
| | 5. Brakes worn. | 5. Replace brake assembly (18). |
| | 6. Take up arm (115) sticking. | 6. Take up arm must operate freely. |
| Weak Output (Mech.) | 1. Playback Head (38) not aligned properly. | 1. Head should be aligned for maximum output. See "Mechanical Adjustments". |
| | 2. Pressure Pad (57) not making proper contact with head. | 2. Pressure Pad (57) should make complete contact with head pole piece. |
| | 3. Light pressure pad pressure. | 3. Pressure pad must have from 12 to 18 grams pressure on head. |
| | 4. Defective Record Head (38). | 4. Replace. |
| Take-up Reel revolves fast when Play or Record buttons are depressed. | 1. Tab on pause brake lever (30) not adjusted properly. | 1. Adjust pause brake lever so pressure roller (44) disengages capstan, and take up reel stops simultaneously. |
| | 2. Head bar bracket (33) too tight. | 2. See "Mechanical Adjustments". |
| | 3. Button levers not adjusted properly. | 3. Button levers (88) must be adjusted so pressure roller (53) applies from 2 1/2 to 3 1/2 lbs. pressure on capstan in play or record position. See "Mechanical Adjustments". |
| | 4. Pressure roller (53) not aligned properly. | 4. See "Mechanical Adjustments". |
| Supply Reel does not revolve in rewind position. | 1. Loose reel shaft screw (1). | 1. Tighten. |
| | 2. "O" Ring (140) off drive pulleys. | 2. Replace. |
| | 3. Rewind torque not sufficient. | 3. See "Mechanical Adjustments". |
| | 4. Activating spring (21) loose. | 4. Replace. |

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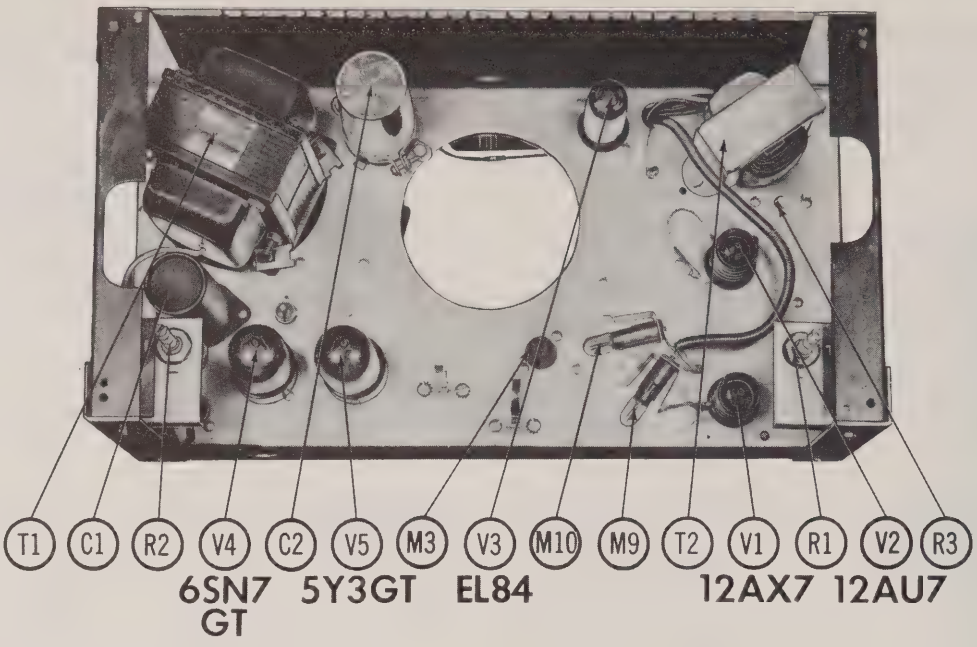
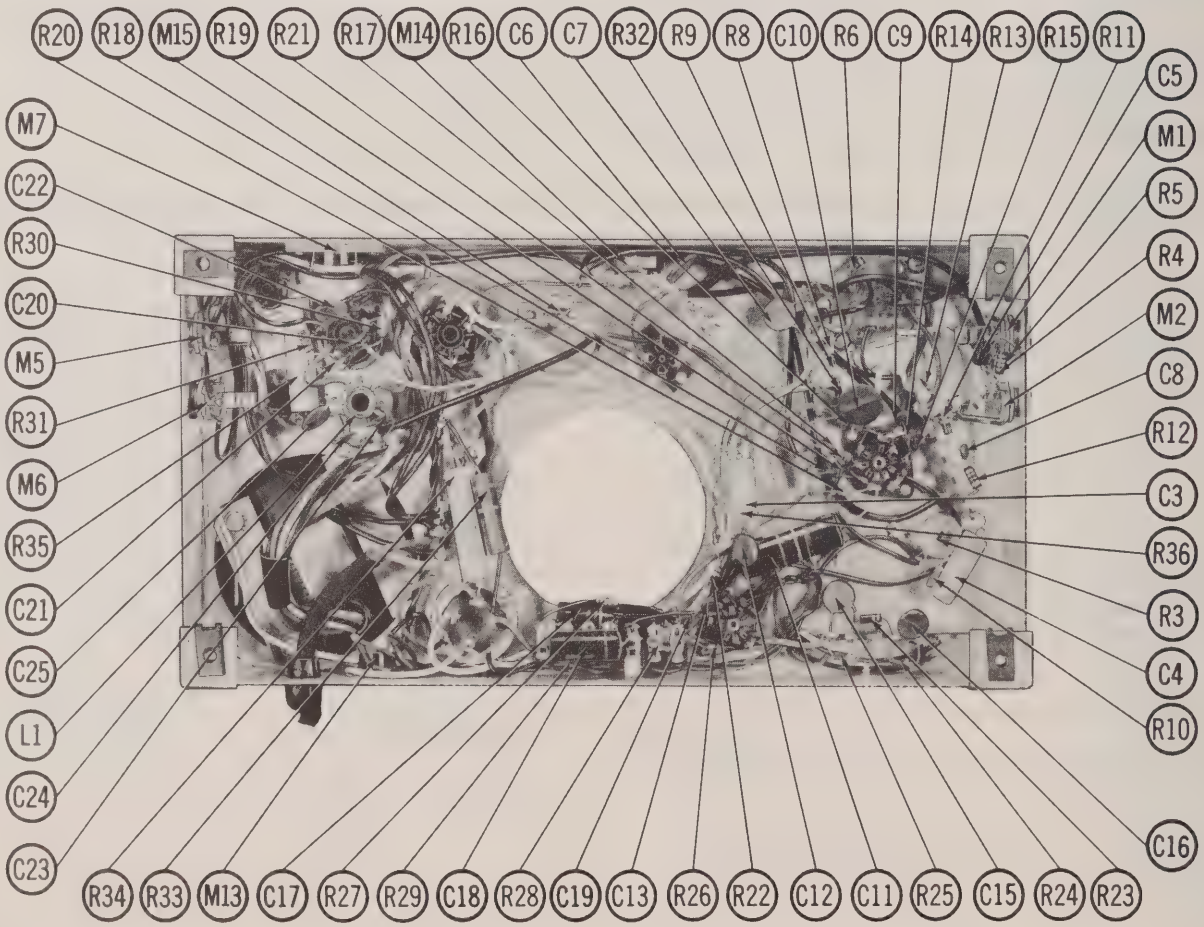
| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 5. Take-up driver (137) not engaging motor drive shaft. | 5. See ("Take-up Reel does not revolve in Play or Record Position"). |
| | 6. Brake sticking on take-up pulley. | 6. Check that brake arm assembly is free and not binding, also check that brake return springs are releasing brakes. |
| | 7. Pause Brake on. | 7. Release. |
| | 8. Oil on "O" Ring (117). | 8. Remove all oil from "O" Ring and pulleys. |
| Does not shut off at the end of tape. | 1. Defective switch. | 1. Replace or repair. |
| | 2. Switch wand catching on plastic escutcheon (13). | 2. Position switch by loosening self-tapping screw (98). |
| Wow or Flutter (Record or Play Back). | 1. Bump on take-up belt (122). | 1. Replace. |
| | 2. Safety Switch (108) applying too much pressure on tape. | 2. Replace |
| | 3. Brakes dragging. | 3. (A) Adjust stop button lever (88) so brakes release completely.<br>(B) Check that brake return springs (17) not loose or broken.<br>(C) Brake arm assembly must be free and not binding.<br>(D) Pause brake must release completely. |
| | 4. Flat or bumpy pressure roller. | 4. Replace. |
| | 5. Capstan bearings not aligned properly. | 5. Tap capstan slightly (bearings are self-aligning). |
| | 6. Eccentric Flywheel | 6. Replace. |
| | 7. Bumpy or eccentric capstan idler (120). | 7. Replace. |
| | 8. Head bar bracket loose. | 8. (See "Take-up reel revolves fast in Play or Record position"). |
| | 9. Pressure roller (53) not aligned properly. | 9. See "Mechanical Adjustments". |
| Unit does not turn on with Off-On Switch. | 1. No current at motor or amplifier. | 1. (A) Check that current is reaching AC leads.<br>(B) Check that fuse is not burned out. If so, replace.<br>(C) Check that Off-On switch and automatic shut-off switch are closing. |
| Button Interlock (87) inoperative. | 1. Interlock bar return spring loose or broken. | Replace. |

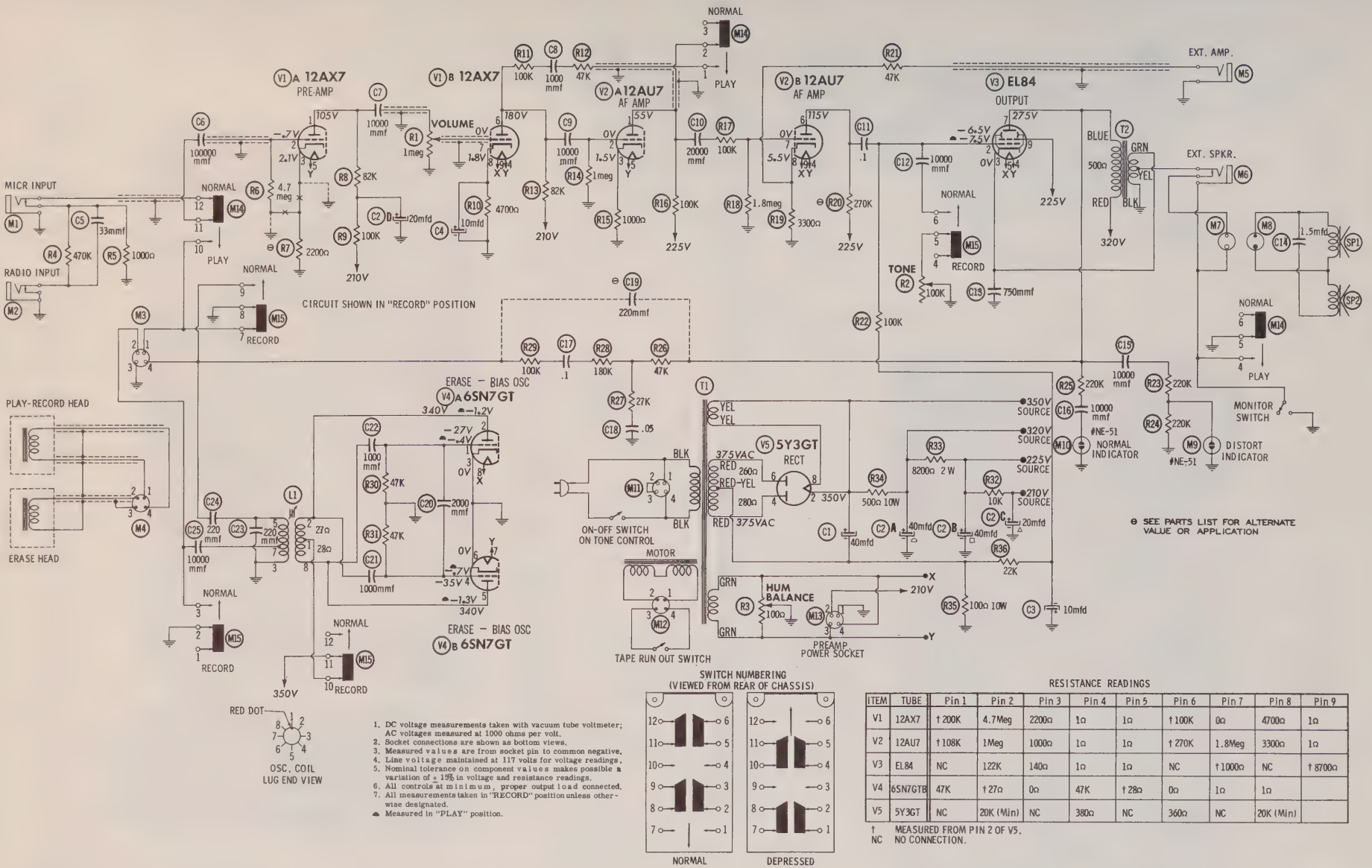
| SYMPTOM | CAUSE | REMEDY |
|---|---|---|
| | 2. Buttons sheered. | 2. Replace. |
| | 3. Tabs on interlock bar (87) bent. | 3. Straighten or replace. Tab on back of interlock bar must be set so the button lever on the stop button can remove the interlock bar from under the play and record button. |
| Record Button can be depressed without safety lever. | 1. Record interlock return spring off or broken. | 1. Replace. |
| | 2. Tabs on record button interlock lever bent or broken. | 2. Straighten or replace. |
| | 3. Button sheered. | 3. Replace. |
| Buttons do not stay depressed. | 1. Latch bar spring off or broken. | 1. Replace. |
| | 2. Latch bar sticking or bent. | 2. Repair or replace. |
| Counter inoperative. | 1. Counter belt (142) off pulleys. | 1. Replace. |
| | 2. Counter dial loose. | 2. Repair or replace. |
| | 3. Gears binding. | 3. Counter must turn freely without binding. Check gears and pulleys for binding. |
| Does not erase clean. | 1. Leads off Erase Head (37). | 1. Replace. |
| | 2. Erase Head (34) not adjusted properly. | 2. Erase Head should be adjusted so the top of the head pole piece is approximately .005 inch above the edge of the tape. |
| | 3. Low erase current. | 3. To determine the proper erase current, place a 10 ohm precision resistor in series with either lead leading from the erase head. Place the recorder in the record position and,using an A. C. Voltmeter, check the voltage across the resistor. With the oscillator and erase head functioning properly, the voltage across the resistor should be approximately .3 volts. With a .3 volt reading the required 30 milliamps of current is present. |
| Pause Brake does not operate properly. | 1. Tab on pause brake not adjusted properly. | 1. (See "Take-up Reel revolves fast when Play or Record buttons are depressed"). |
| | 2. Brake worn. | 2. Replace. |
| | 3. Brake return spring off or broken. | 3. Replace. |




Top View — Model R-1200 Amplifier




Bottom View — Model R-1200 Amplifier




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.
7. All measurements taken in "RECORD" position unless otherwise designated.

▲ Measured in "PLAY" position.

SWITCH NUMBERING (VIEWED FROM REAR OF CHASSIS)




RESISTANCE READINGS

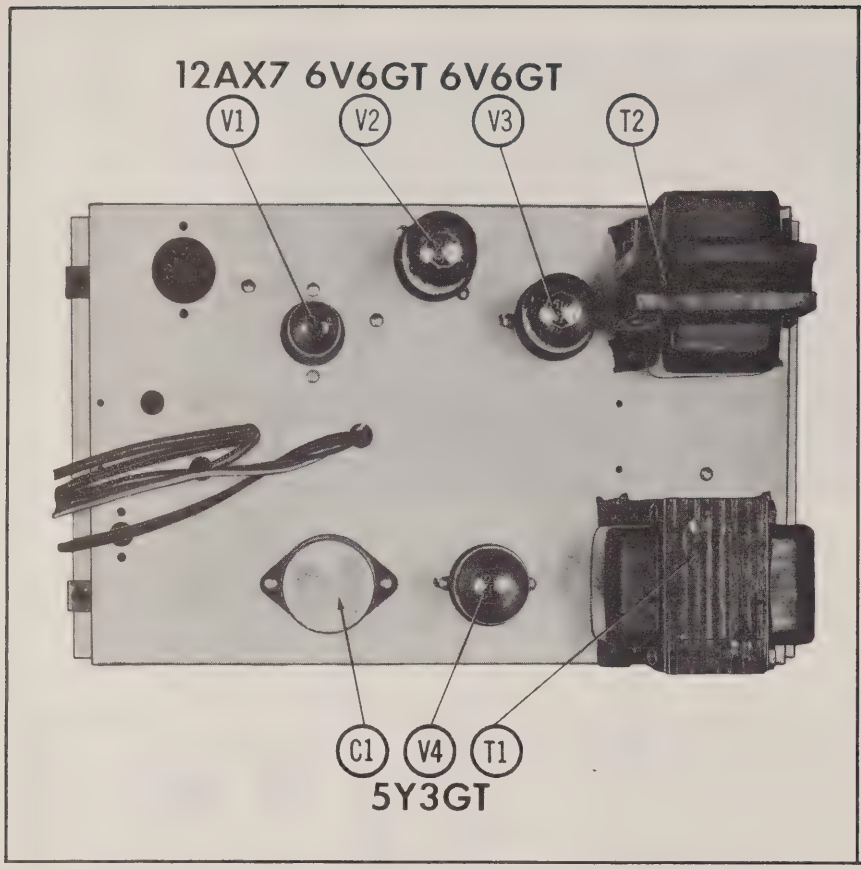
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | †200K | 4.7Meg | 2200Ω | 1Ω | 1Ω | †100K | 0Ω | 4700Ω | 1Ω |
| V2 | 12AU7 | †108K | 1Meg | 1000Ω | 1Ω | 1Ω | †270K | 1.8Meg | 3300Ω | 1Ω |
| V3 | EL84 | NC | 122K | 140Ω | 1Ω | 1Ω | NC | †1000Ω | NC | †8700Ω |
| V4 | 6SN7GTB | 47K | †27Ω | 0Ω | 47K | †28Ω | 0Ω | 1Ω | 1Ω | |
| V5 | 5Y3GT | NC | 20K (Min) | NC | 380Ω | NC | 360Ω | NC | 20K (Min) | |

† MEASURED FROM PIN 2 OF V5.
NC NO CONNECTION.

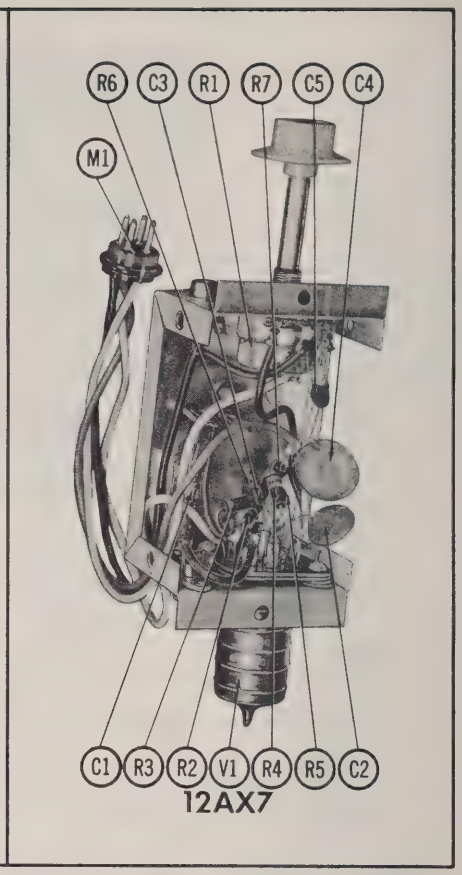
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

373-13

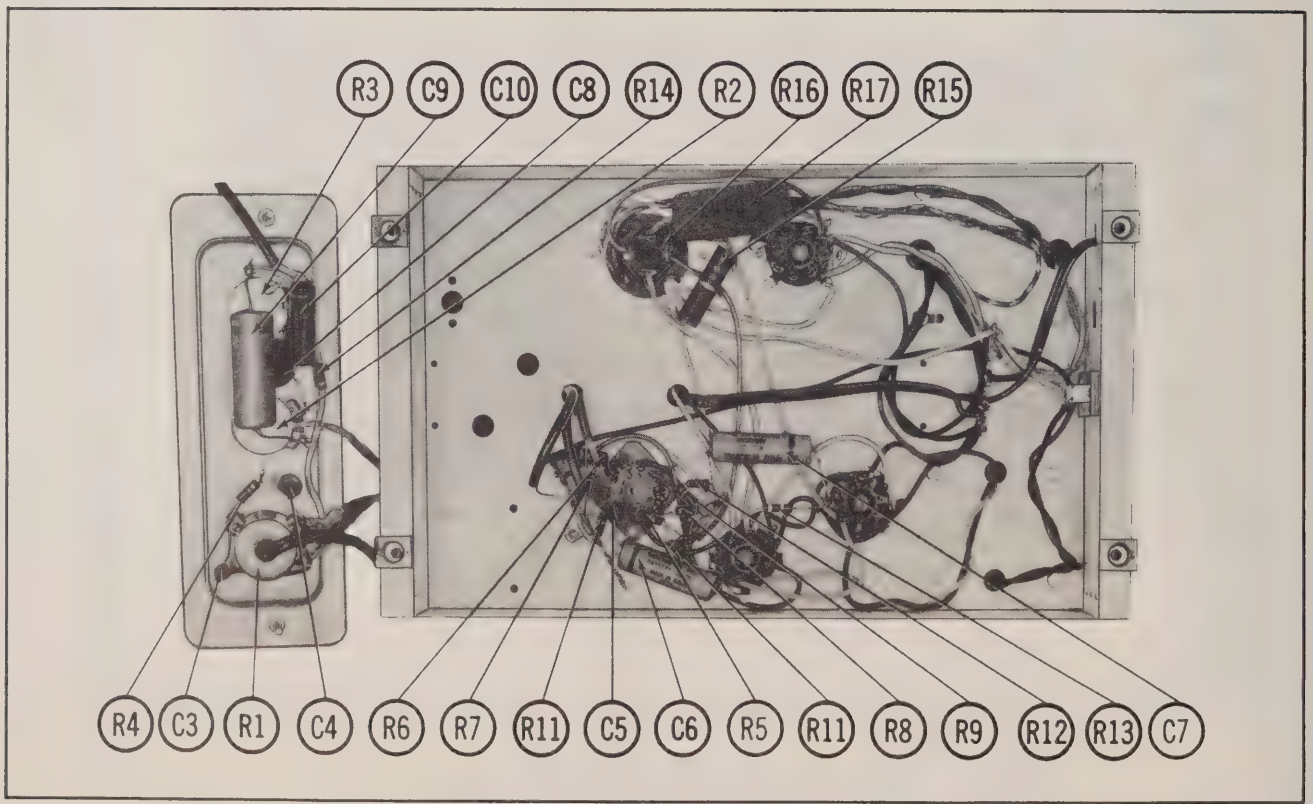
## MODEL R-1200 SCHEMATIC DIAGRAM



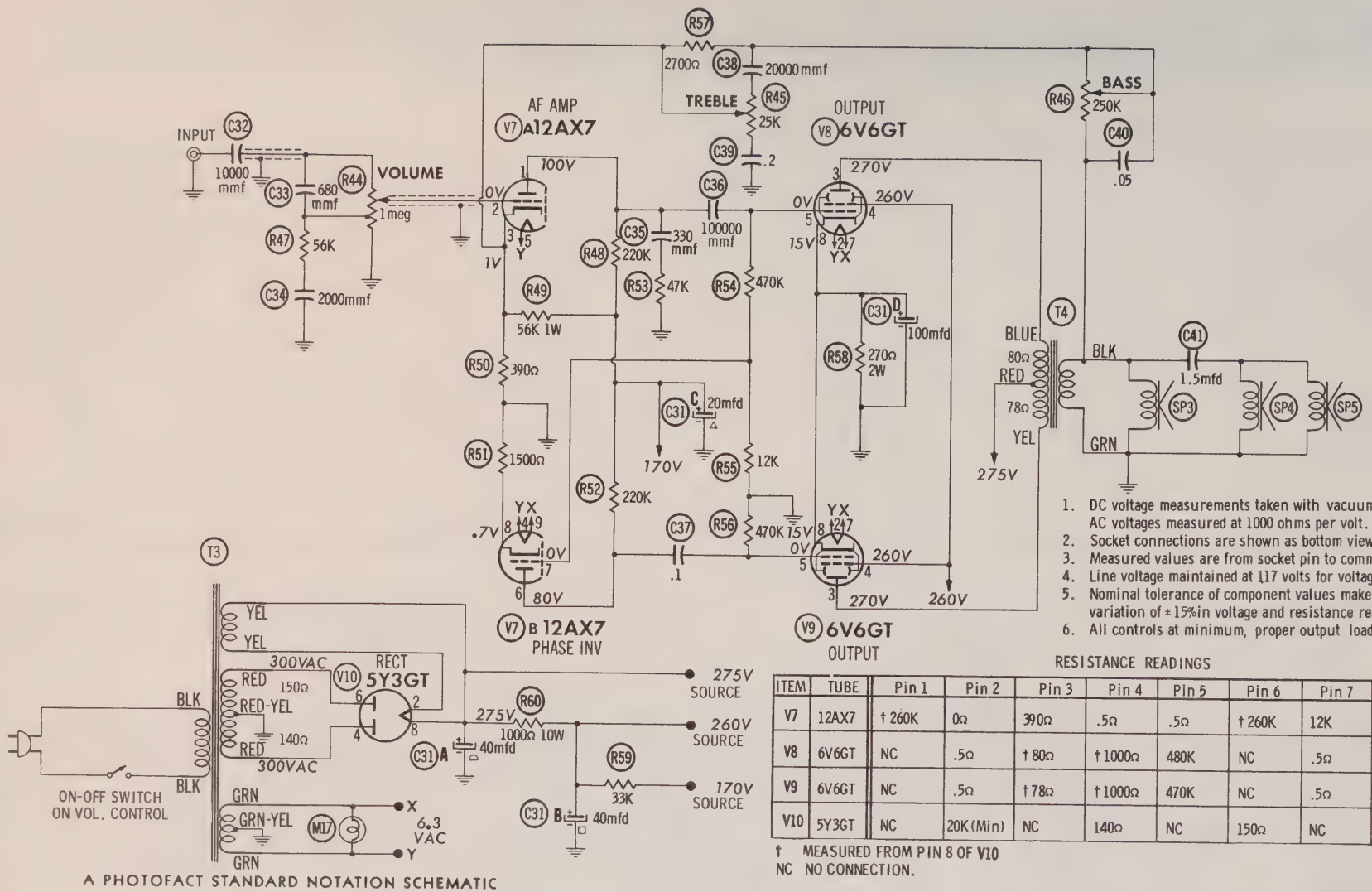

TOP VIEW — MODEL R-1203 AMPLIFIER




MODEL R-1204 BINAURAL ADAPTOR




BOTTOM VIEW — MODEL R-1203 AMPLIFIER




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

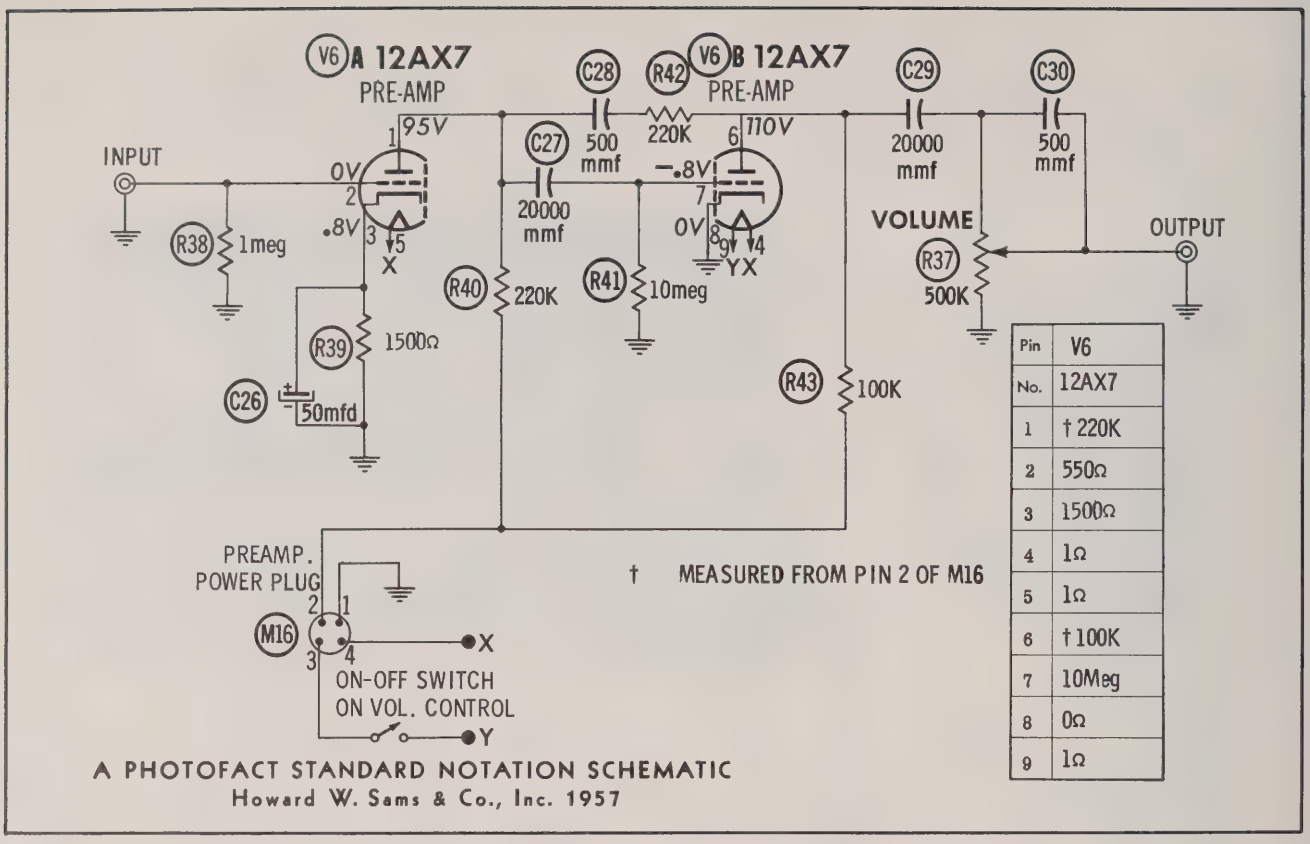
| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V7 | 12AX7 | † 260K | 0Ω | 390Ω | .5Ω | .5Ω | † 260K | 12K | 1500Ω | .5Ω |
| V8 | 6V6GT | NC | .5Ω | † 80Ω | † 1000Ω | 480K | NC | .5Ω | 270Ω | |
| V9 | 6V6GT | NC | .5Ω | † 78Ω | † 1000Ω | 470K | NC | .5Ω | 270Ω | |
| V10 | 5Y3GT | NC | 20K (Min) | NC | 140Ω | NC | 150Ω | NC | 20K (Min) | |

† MEASURED FROM PIN 8 OF V10
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1957

373-13

MODEL R-1203 SCHEMATIC DIAGRAM




| Pin No. | V6 12AX7 |
|---|---|
| 1 | † 220K |
| 2 | 550Ω |
| 3 | 1500Ω |
| 4 | 1Ω |
| 5 | 1Ω |
| 6 | † 100K |
| 7 | 10Meg |
| 8 | 0Ω |
| 9 | 1Ω |

MODEL R-1204 BINAURAL ADAPTOR SCHEMATIC

## MECHANICAL PARTS LIST (MODELS R-1200 & BR-1200).

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | 8571 | Reel Screw (Left Hand) |
| 2 | 8570 | Reel Screw (Right Hand) |
| 3 | 8010 | Reel Disc. Assembly |
| 4 | 8140 | Speed Knob |
| 5 | 8118 | Head Escutcheon |
| 6 | 8256 | Screw, Head Escutcheon Mtg. |
| 7 | 8649 | Knob |
| 8 | 6990 | Felt Washer |
| 9 | 8407 | Screw, 6-32 x 13/16" |
| 10 | 8097 | Counter Dial (Small) |
| 11 | 8122 | Counter Dial Spring |
| 12 | 8096 | Counter Dial (Large) |
| 13 | S8117 | Main Escutcheon |
| 14 | 8214 | Tri-Mount Stud |
| 15 | 8361-CR | Cover Plate Assembly |
| 16 | 8296 | Screw (#6-32 Self Top. Shoulder) |
| 17 | 8138 | Spring, Brake Return |
| 18 | 8297 | Brake Arm Assembly |
| 19 | 8567 | Rivet |
| 20 | S8181 | Takeup Arm Assembly |
| 21 | 8441 | Spring, Brake Activating |
| 22 | 8199 | Fibre Washer |
| 23 | 8037 | Rivet |
| 24 | 8293 | Safety Switch Release Lever |
| 25 | 8294 | Safety Switch Release Wire |
| 26 | 8048 | Knob, Pause |
| 27 | 8178 | Brake Shoe Assembly, Pause |
| 28 | 8017 | Spring, Pause Brake Activating |
| 29 | 4092 | Rivet |
| 30 | 8044 | Pause Lever |
| 31 | 8078 | Spring, Capstan Idler Return |
| 32 | 8152 | Screw, Head Bar Adj. |
| 33 | 8147 | Head Bar Bracket |
| 34 | 8138 | Spring, Head Bar Return |
| 35 | 8520 | Spring Washer |
| 36 | 8593 | Head Bar & Plate Assembly (Includes Erase Head Bracket, Pressure Roller Stud, Tape Guide & Head Mtg. Screws) |
| 37 | 12513 | Erase Head |
| 38 | 12512 | Play-Record Head |
| 39 | 12512 | Binaural Head (Model BR-1200) |
| 40 | 2300 | #2-56 Hex. Nut, Erase Hd. Adj. |
| 41 | 8424 | Flat Washer |
| 42 | 2300 | #2-56 Hex. Nut, Play Record Head Adjustment |
| 43 | 2300 | #2-56 Hex. Nut, Binaural Hd. Adj. |
| 44 | 2300 | #2-56 Hex. Nut, Head Nest Mtg. |
| 45 | 2300 | #2-56 Hex. Nut, Play-Record Hd. Azimuth Adj. |
| 46 | 2300 | #2-56 Hex. Nut, Binaural Hd. Azimuth Adj. |
| 47 | 8131 | Spring, Head Adjustment |
| 48 | 8023 | Head Nest |
| 49 | 8045 | Tape Guide |
| 50 | 8175 | #2-56 x 1/8 Phillips R. H. M. S. |
| 51 | 8489 | "E" Ring |
| 52 | 8266 | Fibre Washer |
| 53 | 8123 | Pressure Roller |
| 54 | 1588 | "C" Washer |
| 55 | 8390 | Spring, Pressure Pad |
| 56 | 8102 | Pressure Pad Arm |
| 57 | 8067 | Pressure Pad (Felt) |
| 58 | 1588 | "C" Washer (Model BR-1200 only) |
| 59 | 8390 | Spring, Pressure Pad (Model BR-1200 only) |
| 60 | 8102 | Pressure Pad Arm (Model BR-1200 only) |
| | 8393 | Pressure Pad Arm, With Felt Pad (Model BR-1200 only) |
| 61 | 8067 | Felt Pressure Pad (Model BR-1200 only) |
| 62 | 8048 | Monitor Knob |
| 63 | 2857 | Rivets |
| 64 | 8398 | Pal Nut, Timer Mtg. |
| 65 | 6515 | Flat Washer (Reel Height Spacer) |
| 66 | 1652 | "C" Washer |
| 67 | 2583 | Fibre Washer |
| 68 | 8398 | Pal Nut |
| 69 | 8298 | Screw, #6-32 Self Topping |
| 70 | 8173 | Rewind Actuating Spring |
| 71 | S8174 | Record Actuating Spring |
| 72 | 8285 | Brake Activating Hook |
| 73 | S8174 | Play Actuating Spring |
| 74 | 8173 | Forward Actuating Spring |
| 75 | 8207 | Fibre Safety Switch Shield |
| 76 | 8313 | Baseplate Mtg. Screw |
| 77 | 8050 | Tape Guide |
| 78 | 8434 | Head Bar Bracket Spring |
| 79 | 8031 | Dust Shield |
| 80 | 2274 | Fibre Washer |
| 81 | 8036 | Button Housing Ass'y. (Complete) Consists of: |
| 82 | | 8074 Control Button - Rewind, Record, Stop, Play, or Fwd. |
| 83 | | 8082 Latch Bar |
| 84 | | 8037 Rivet |
| 85 | | 8432 Interlock Lever |
| 86 | | 8128 Spring |
| 87 | | 8114 Lock Bar |
| 88 | | 8024 Button Lever |
| 89 | | 8256 Screw, #4-38 |
| 90 | | 8382 Button Housing & Lever Assembly Includes Items, 84, 85, 87 and 8022 Button Housing |
| 91 | | 8089 Rod (Button Lever) |
| 92 | | 1652 "C" Washer |
| 93 | | 1588 "C" Washer |
| 94 | | 8116 Stop Rod |
| 95 | | 8125 Spring |
| 96 | | 8128 Spring |
| 97 | 8631 | Baseplate Ass'y. (Includes All Parts That Are Permanently Fixed) |
| 98 | 8298 | Tape Guide Mtg. Screw |
| 99 | 8220 | Monitor Switch |
| 100 | 8046 | Counter Ass'y. (Complete) |
| 101 | S8006 | Reel Bearing |
| 102 | S8076 | Cam Link Spring Guide |
| 103 | 2857 | Rivets |
| 104 | 8084 | Capstan Bearing |
| 105 | 8098 | Bearing Plate |
| 106 | 8133 | Spring Washers |
| 107 | 1588 | "C" Washer |
| 108 | 8038 | Switch Assembly |
| 109 | 8090 | Switch Mtg. Bracket |
| 110 | 8121 | Fast Forward Rod |
| 111 | 8107 | Control Rod Guide |
| 112 | 8326 | Takeup Bar Actuator |
| 113 | 8130 | Spring |
| 114 | 8298 | Screw |
| 115 | S8377 | Takeup Bar Assembly |
| 116 | 8331 | Rivet |
| 117 | 2829 | Fibre Washer |
| 118 | 8488 | "E" Washer |
| 119 | 2829 | Fibre Washer |

## MECHANICAL PARTS LIST (MODELS R-1200 & BR-1200 CON'T.)

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|---|---|---|---|---|---|
| 120 | 8079 | Capstan Idler | 139 | 8106 | Rewind Driver |
| 121 | S8391 | Capstan Idler Pivot Arm | 140 | 8036 | Rewind Belt |
| 122 | 8034 | Takeup Belt | 141 | 8183 | L.H. Reel Pulley |
| 123 | S8103 | Tension Pulley & Bearing | 142 | 8141 | Counter Belt |
| 124 | 8182 | R.H. Reel Pulley | 143 | 8110 | Flywheel & Capstan Assembly |
| 125 | 8568 | Cork Washer | 144 | 1652 | "C" Washer |
| 126 | 8488 | "E" Ring | 145 | 8373 | Washer |
| 127 | 8014 | Bell Crank | 146 | 8060 | Rubber Grommet |
| 128 | 8009 | Brake Rod | 147 | 8378 | Sub-Plate Ass'y. (Less Grommets & Capstan Bearing |
| 129 | 8037 | Rivet | | | |
| 130 | 8039 | Cam & Shaft Assembly | 148 | 8146 | Screw |
| 131 | S8029 | Cam Link | 149 | 8015 | Motor |
| 132 | 8535 | Cam Link Lift Spring | 150 | 8258 | Spring |
| 133 | 8035 | Rewind Rod | 151 | 2279 | Washer, Metal |
| 134 | S8376 | Rewind Arm | 152 | 7470 | Washer, Cork |
| 135 | 2583 | Fibre Washer | 153 | 8255 | Fan |
| 136 | 8566 | Cork Washer | 154 | 1719 | "C" Washer |
| 137 | 8018 | Takeup Driver | | 8611 | 50 Cycle Conversion Kit |
| 138 | 8489 | "E" Ring | | | |

## ELECTRICAL PARTS LIST (MODEL R-1200)

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|---|---|---|---|---|---|
| V1 | | 12AX7, Pre-Amp. | C21 | CC-122S | Cap., Ceramic, 1000 Mmf. @ 500V. |
| V2 | | 12AU7, AF Amp. | | | |
| V3 | | EL84, Audio Output | C22 | CC-122S | Cap., Ceramic, 1000 Mmf. @ 500V. |
| V4 | | 6SN7GT, Bias Osc. | | | |
| V5 | | 5Y3GT, Rectifier | C23 | CC-114 | Cap., Ceramic, 220 Mmf. @ 500V. |
| C1 | CE-113 | Cap., Elect., 40 Mfd. @ 450V. | | | |
| C2A | CE-111 | Cap., Elect., 40 Mfd. @ 450V. | C24 | CC-114 | Cap., Ceramic, 220 Mmf. @ 500V. |
| B | | Cap., Elect., 40 Mfd. @ 450V. | | | |
| C | | Cap., Elect., 20 Mfd. @ 450V. | C25 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. |
| D | | Cap., Elect., 20 Mfd. @ 450V. | | | |
| C3 | CE-114 | Cap., Elect., 10 Mfd. @ 25V. | R1 | VC-178 | Volume Control, 1 Meg. |
| C4 | CE-114 | Cap., Elect., 10 Mfd. @ 25V. | R2 | VC-177 | Tone Control & On-Off Switch, 100K |
| C5 | CC-108 | Cap. Ceramic, 33 Mmf. @ 500V. | | | |
| C6 | CC-10 | Cap., Ceramic, 10,000 Mmf. @ 100V. | R3 | CT-100 | Hum Balance Cont., 100Ω |
| | | | R4 | RC-216 | Resistor, 470K, 1/2 Watt |
| C7 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | R5 | RC-241 | Resistor, 1000Ω, 1/2 Watt |
| | | | R6 | RC-242 | Resistor, 4.7 Meg., 1/2 Watt |
| C8 | CC-120 | Cap., Ceramic, 1000 Mmf. @ 500V. | R7 | | Resistor 2.2K, 1/2 Watt (Not Used Before Serial #1980) |
| C9 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | R8 | RC-220 | Resistor, 82K, 1/2 Watt |
| | | | R9 | RC-225 | Resistor, 100K, 1/2 Watt |
| C10 | CC-105 | Cap., Ceramic, 20,000 Mmf. @ 500V. | R10 | RC-200 | Resistor, 4.7K, 1/2 Watt |
| | | | R11 | RC-225 | Resistor, 100K, 1/2 Watt |
| C11 | CP-202 | Cap., Molded Tub., .1 Mfd. @ 400V. | R12 | RC-213 | Resistor, 47K, 1/2 Watt |
| | | | R13 | RC-220 | Resistor, 82K, 1/2 Watt |
| C12 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | R14 | RC-211 | Resistor, 1 Meg., 1/2 Watt |
| | | | R15 | RC-241 | Resistor, 1000Ω, 1/2 Watt |
| C13 | CC-121 | Cap., Ceramic, 750 Mmf. @ 500V. | R16 | RC-225 | Resistor, 100K, 1/2 Watt |
| | | | R17 | RC-225 | Resistor, 100K, 1/2 Watt |
| C14 | CP-105 | Cap., Paper Tub., 1.5 Mfd @ 200V. | R18 | RC-244 | Resistor, 1.8 Meg., 1/2 Watt |
| | | | R19 | RC-204 | Resistor, 3.3K, 1/2 Watt |
| C15 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | R20 | RC-238 | Resistor, 270K, 1/2 Watt (Models Before Serial #1980 Used a 68K Resistor In This Application) |
| C16 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | | | |
| | | | R21 | RC-213 | Resistor, 47K, 1/2 Watt |
| C17 | CP-202 | Cap., Molded Tub., .1 Mfd. @ 400V. | R22 | RC-225 | Resistor, 100K, 1/2 Watt |
| | | | R23 | RC-201 | Resistor, 220K, 1/2 Watt |
| C18 | CP-200 | Cap., Molded Tub., .05 Mfd. @ 400V. | R24 | RC-201 | Resistor, 220K, 1/2 Watt |
| | | | R25 | RC-201 | Resistor, 220K, 1/2 Watt |
| C19 | CC-114 | Cap., Ceramic, 220 Mmf. @ 500V. (Not Used After Serial # 1980) | R26 | RC-213 | Resistor, 47K, 1/2 Watt |
| | | | R27 | RC-245 | Resistor, 27K, 1/2 Watt |
| | | | R28 | RC-226 | Resistor, 180K, 1/2 Watt |
| C20 | CC-123S | Cap., Ceramic, 2000 Mmf. @ 500V. | R29 | RC-225 | Resistor, 100K, 1/2 Watt |
| | | | R30 | RC-213 | Resistor, 47K 1/2 Watt |

## ELECTRICAL PARTS LIST (MODEL R-1200 CON'T.)

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|---|---|---|---|---|---|
| R31 | RC-213 | Resistor, 47K 1/2 Watt | M2 | JK-102 | Phono-Input Jack |
| R32 | RC-243 | Resistor, 10K, 1/2 Watt | M3 | SO-400 | Head Socket |
| R33 | RC-703 | Resistor, 8.2K, 2 Watt | M4 | | Head Plug |
| R34 | RW-303 | Resistor, 500Ω, 10 Watt | M5 | JK-107 | Ext. Amp. Jack |
| R35 | RW-302 | Resistor, 100Ω, 10 Watt | M6 | JK-102 | Ext. Spkr. Jack |
| R36 | RC-224 | Resistor, 22K, 1/2 Watt | M7 | SO-200 | Speaker Socket |
| T1 | TR-121 | Power Transformer | M9 | | Distort Lamp, Neon NE-51 |
| T2 | TR-124 | Output Transformer | M10 | | Normal Lamp, Neon NE-51 |
| SP1 | SP-607 | 6" x 9" Speaker, 3.16 oz. | M11 | SO-400 | Motor Socket |
| SP2 | SP-404 | 3 1/2" Speaker, 1.47 oz. | M13 | SO-400 | Binaural Adaptor Socket |
| L1 | LO-102 | Osc. Coil | M14 | SW-112-P | Playback Switch Assembly |
| M1 | JK-102 | Mic. Input Jack | M15 | SW-112-R | Record Switch Assembly |

## ELECTRICAL PARTS LIST (MODEL R-1204)

| Ref. No. | Part No. | Description | Ref. No. | Part No. | Description |
|---|---|---|---|---|---|
| V6 | | 12AX7, Binaural Pre-Amp. | | | @ 500V. |
| C26 | CE-115 | Cap., Elect., 50 Mfd. @ 6V. | R37 | VC-179 | Volume Cont. & On-Off Sw., 500K |
| C27 | CC-105 | Cap., Ceramic, 20,000 Mmf. @ 500V. | R38 | RC-211 | Resistor, 1 Meg., 1/2 Watt |
| | | | R39 | RC-222 | Resistor, 1.5K, 1/2 Watt |
| C28 | CC-117 | Cap., Ceramic, 500 Mmf. @ 500V. | R40 | RC-201 | Resistor, 220K, 1/2 Watt |
| | | | R41 | RC-230 | Resistor, 10 Meg. 1/2 Watt |
| C29 | CC-105 | Cap., Ceramic, 20,000 Mmf. @ 500V. | R42 | RC-201 | Resistor, 220K, 1/2 Watt |
| | | | R43 | RC-225 | Resistor, 100K, 1/2 Watt |
| C30 | CC-117 | Cap., Ceramic, 500 Mmf. | M16 | PL-400 | 4 Prong Plug |

## ELECTRICAL PARTS LIST (MODEL R-1203)

| Ref. No. | Part No. | Description | Ref. No. | Part. No. | Description |
|---|---|---|---|---|---|
| V7 | | 12AX7, AF Amp. - Phase Inv. | C41 | CP-105 | Cap., Paper Tub., 1.5 Mfd. @ 200V. |
| V8 | | 6V6GT, Audio Output | | | |
| V9 | | 6V6GT, Audio Output | R44 | VC-187 | Volume Cont. & On-Off Switch, 1 Meg. |
| V10 | | 5Y3GT, Rectifier | | | |
| C31 | CE-102 | Cap., Elect., 40 Mfd. @ 450V. | R45 | VC-186 | Treble Cont. 25K |
| B | | Cap., Elect., 40 Mfd. @ 450V. | R46 | VC-185 | Bass Cont. 250K |
| C | | Cap., Elect., 20 Mfd. @ 200V. | R47 | RC-218 | Resistor, 56K, 1/2 Watt |
| D | | Cap., Elect., 100 Mfd. @ 50V. | R48 | RC-201 | Resistor, 220K, 1/2 Watt |
| C32 | CC-100 | Cap., Ceramic, 10,000 Mmf. @ 500V. | R49 | RC-503 | Resistor, 56K, 1 Watt |
| | | | R50 | RC-223 | Resistor, 390Ω, 1/2 Watt |
| C33 | CC-101 | Cap., Ceramic, 680 Mmf. @ 500V. | R51 | RC-222 | Resistor, 1500Ω, 1/2 Watt |
| | | | R52 | RC-201 | Resistor, 220K, 1/2 Watt |
| C34 | CC-106 | Cap., Ceramic, 2000 Mmf. @ 500V. | R53 | RC-213 | Resistor, 47K, 1/2 Watt |
| | | | R54 | RC-216 | Resistor, 470K, 1/2 Watt |
| C35 | CC-109 | Cap., Ceramic, 330 Mmf. @ 500V. | R55 | RC-217 | Resistor, 12K, 1/2 Watt |
| | | | R56 | RC-216 | Resistor, 470K, 1/2 Watt |
| C36 | CP-202 | Cap., Paper Tub., .1 Mfd. @ 400V. | R57 | RC-208 | Resistor, 2.7K, 1/2 Watt |
| | | | R58 | RC-700 | Resistor, 270Ω, 2 Watt |
| C37 | CP-202 | Cap., Paper Tub., .1 Mfd. @ 400V. | R59 | RC-207 | Resistor, 33K, 1/2 Watt |
| | | | R60 | RW-300 | Resistor, 1000Ω, 10 Watt W.W. |
| C38 | CC-105 | Cap., Ceramic, 20,000 Mmf. @ 500V. | T3 | TR-105 | Power Transformer |
| | | | T4 | TR-106 | Output Transformer |
| C39 | CP-100 | Cap., Paper Tub., .2 Mfd. @ 200V. | SP3 | SP-805 | Speaker 10" Round |
| | | | SP4 | SP-404 | Speaker, 3 1/2" |
| C40 | CP-102 | Cap., Molded Tub., .05 Mfd. @ 200V. | SP5 | SP-404 | Speaker, 3 1/2" |
| | | | M17 | | Pilot Lamp |

# TRUETONE MODELS D5570A, D5571A, D5572A, D5573A, D5575A, D5770A, D5771A, D5772A

TRUETONE MODELS D5570A, D5571A, D5572A, D5573A, D5575A, D5770A, D5771A, D5772A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MODEL D5770A

TRUETONE MODELS D5570A, D5571A, D5572A, D5573A, D5575A, D5770A, D5771A, D5772A

| | | |
|---|---|---|
| TRADE NAME | Truetone Models D5570A, D5571A, D5572A, D5573A, D5575A, D5770A, D5771A, D5772A | |
| SUPPLIER | Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo. | |
| TYPE SET | AC Operated Phono Amplifier | |
| TUBES (One) | Type 25L6GT (or) 50C5 (or) 50L6GT Output | |
| POWER SUPPLY | 105-125 Volts AC-60 Cycles | RATING .43 Amp. @ 117 Volts AC (32 Watts with Motor) |

MODELS D5570A, D5571A, D5572A, D5770A HAVE 3 SPEED MANUAL RECORD PLAYERS. MODELS D5771A, D5772A HAVE 4 SPEED MANUAL RECORD PLAYERS.
FOR SERVICE INFORMATION ON 45RPM AUTOMATIC RECORD CHANGER USED IN MODEL D5573A - SEE SIMILAR RCA RP190 SERIES - PHOTOFACT SET 144 FOLDER 7 OR RECORD CHANGER MANUAL CM-4.
FOR SERVICE INFORMATION ON 3 SPEED AUTOMATIC RECORD CHANGER USED IN MODEL D5575A - SEE SIMILAR CRESCENT 500 SERIES - PHOTOFACT SET 197 FOLDER 4 OR RECORD CHANGER MANUAL CM-5.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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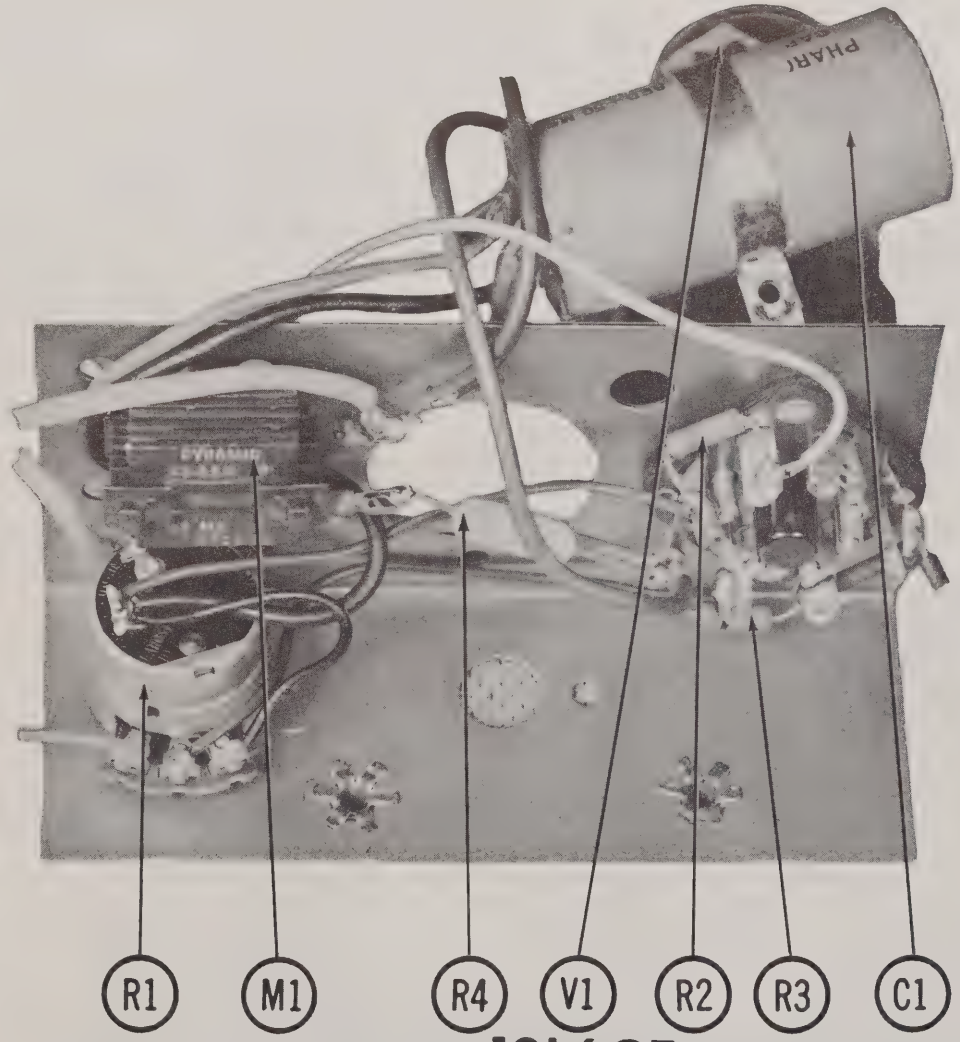



CHASSIS-BOTTOM VIEW

# PARTS LIST AND DESCRIPTIONS
## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Output | 25L6GT | Note 1 |

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| | | | |

Note 1. Type 50L6GT or 50C5 used in Models D5571A and D5572A

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | TRUETONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | 50 | 150 | CE-5030WA | PRS150V3050 | BBRD5315 | TCD497 | TDLD-8 | FMD-301 | TVA-2450 |
| B | 30 | 150 | | | | | | | |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | TRUETONE PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 1Meg | ½ | VC1MWA | B-70 | A47-1Meg-Z | Q13-137 | U53 | Volume |
| B | Shaft | | | Not req. | FS-3 | Not req. | Not req. | |
| C | Switch | | | KB-1 | SWE-12 | 76-1 | US-26 | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | TRUETONE PART No. | IRC PART No. | |
| R2 | 150Ω | | RC15IHWA | BTS-150 | |
| R3 | 10K | | RC14HWA | BTS-10K | Note 1 |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | TRUETONE PART No. | IRC PART No. | |
| R4 | 47Ω | | | BTS-47 | Note 2, 3 |

Note 1. 330Ω used in Model D5570A (Part #RC33IHWA). 12K used in Models D5571A, D5572A (Part #RC123HWA).
Note 2. 56Ω used in some versions (Part #RC56HWA).
Note 3. Not used in Models D5571A, D5572A.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | TRUETONE PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 2500Ω | 3-4Ω | Part of SPKR. | Z1101 | A-3025 | A-3332 | 26S58 ① | S-12X | ① Drill new mounting hole. |

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | TRUETONE PART No. | QUAM PART No. | |
| SP1 | 4". | PM | 3-4Ω | LS1-R/T ① ② | 4A07 | ① Alternate Part #LS4-WA<br>② Includes T1 |

## SELENIUM RECTIFIER

| ITEM No. | RATING | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | TRUETONE PART No. | FEDERAL PART No. | INTERNATIONAL PART No. | MALLORY PART No. | SARKES TARZIAN PART No. | |
| M1 | .045A | SE65WA ①<br>SE50WA ② | 1002A | RS065Q | 6S65 | 65 | Note 1 |

Note 1. M1 is not used in Models D5572A & D5571A.
① Used is Models D5770A, D5573A, D5772A, D5771A, D5575A.
② Used in Model D5570A.

# PARTS LIST AND DESCRIPTIONS (Continued)
## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA | | | | | REMARKS |
|---|---|---|---|---|---|---|
| | TRUETONE PART No. | ASTATIC PART No. | | ELECTRO-VOICE PART No. | | |
| | | CARTRIDGE | NEEDLE | CARTRIDGE | MOUNT | |
| M2 | C-62-1M-WA | 62-1 | K | | | Model D5573A |
| | C-66-2M-WA | 66-2 | K-AG | | | Model D5575A |
| | C-66-TMY-WA | * W-66T<br>66-TV | K-78 | | | * Tone arm complete with cartridge<br>Models D 5572A |
| | C-28-WA | 28<br>* P-28 | N4-2 | 52-2 | PFT-1 | * Tone arm complete with cartridge<br>Models D 5771A, D 5571A, D 5570A, D 5770A |
| | C-66-TMS-WA | 66-TS | K-78 | | | Model D 5772A |

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

## PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

| ITEM No. | REPLACEMENT DATA | | | REMARKS |
|---|---|---|---|---|
| | TRUETONE PART No. | JENSEN PART No. | WALCO PART No. | |
| M3 | N-2-K-WA | † A-67LP or<br>† A-76LP or<br>♦ A-67LPD | * W-39MGA or<br>† W-39MGS or<br>♦ W-39MGD | Model D 5573A |
| | N-2-KAG-WA | † A-762 or<br>† A-672 or<br>♦ A-672D | * W-39MGA or<br>† W-39MGS or<br>♦ W-39MGD | Model D 5575A |
| | N-1-3-K-WA | † A-76 or<br>† A-76LP or<br>† A-67LP or<br>♦ A-67D or<br>♦ A-67LPD | * W-39MGA or<br>† W-39MGS or<br>♦ W-39MGD | Models D 5572A, D 5772A |
| | N-2-7468-WA | † J-252 or<br>† J-152 or<br>♦ J-252D | † WS-400-2 | Models D 5571A, D 5771A,<br>D 5570A, D 5770A |

* Metal  † Jewel  ♦ Diamond

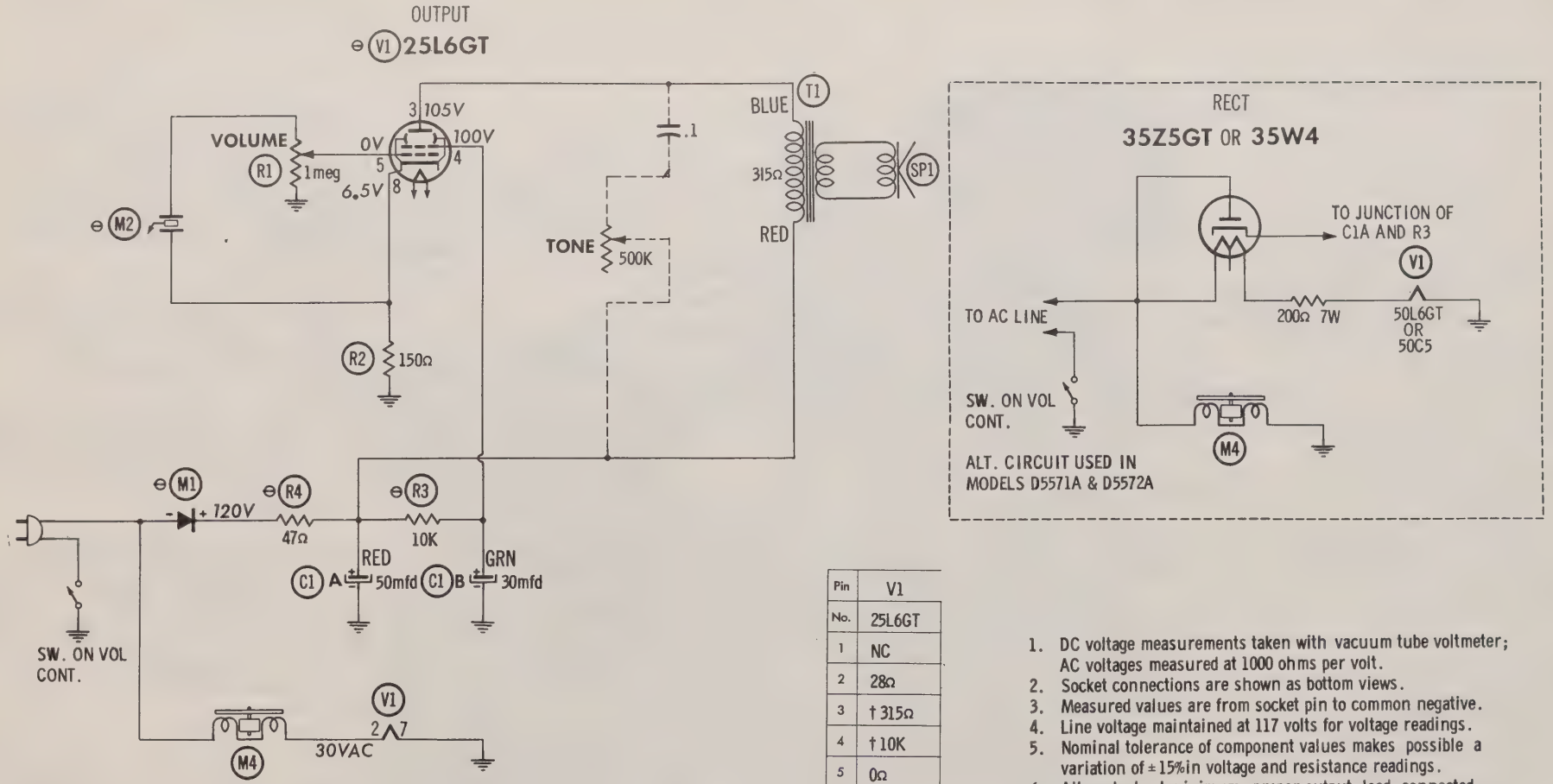
## MISCELLANEOUS

| ITEM No. | PART NAME | TRUETONE PART No. | NOTES |
|---|---|---|---|
| M4 | Phono Motor | PM3-662-WA | 3 Speed, Model D5770A |
| | Phono Motor | PM4-686-WA | 4 Speed, Model D5772A, D5771A |
| | Phono Motor | PM3-655-WA | 3 Speed, Model D5572A, D5571A |
| | Phono Motor | Y700001 | Model D5573A |
| | Phono Motor | 010953 | Model D5575A |

## CABINETS & CABINET PARTS

**(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)**

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Cabinet | CB201TB-WA | Model D5770A |
| Cabinet | CB308X-WA | Model D5572A |
| Cabinet | CB145B-WA | Model D5573A |
| Cabinet | CB315-WA | Model D5575A |
| Cabinet | CB201P-WA | Model D5570A |
| Cabinet | CB730A-WA | Model D5771A |
| Cabinet | CB308A-WA | Model D5772A |
| Cabinet | CB730-WA | Model D5571A |
| Knob | KNVP-WA | On-Off-Volume |
| Knob | KNBTT-WA | Bass-Treble, Model D5575A |
| Knob | KNBTC-WA | Bass-Treble, All Models except D5570A, D5573A, D5575A |




| Pin No. | V1 25L6GT |
|---|---|
| 1 | NC |
| 2 | 28Ω |
| 3 | † 315Ω |
| 4 | † 10K |
| 5 | 0Ω |
| 6 | NC |
| 7 | 0Ω |
| 8 | 150Ω |

† MEASURED FROM OUTPUT OF M1
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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V-M
MODELS 565A-1, -2, -3, -4

V-M
MODELS 565A-1, -2, -3, -4

| | |
|---|---|
| TRADE NAME | V-M Models 565A-1, -2, -3, -4 |
| MANUFACTURER | V-M Corp., Benton Harbor, Michigan |
| TYPE SET | AC Operated Phono Amplifier With 4 Speed Automatic Record Changer |
| TUBES (Four) | Types 12AX7 AF Amp.-Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC-60 Cycles RATING .55 Amp. @ 117 Volts AC |

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE V-M MODEL 1200 — PHOTOFACT SET 290 FOLDER 11 OR RECORD CHANGER MANUAL CM-7.

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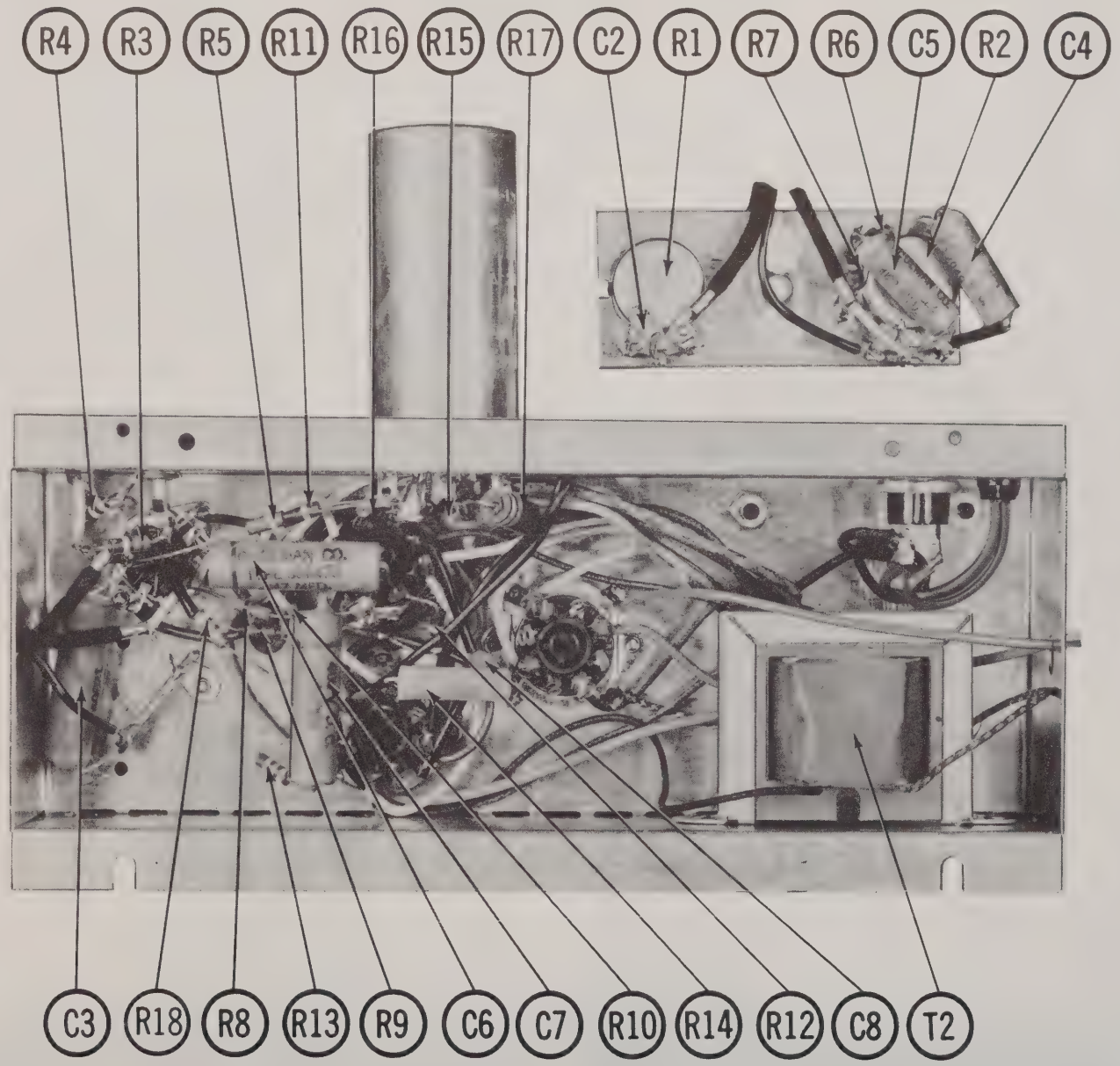



**CHASSIS BOTTOM VIEW**

# PARTS LIST AND DESCRIPTIONS

## TUBES ( GENERAL ELECTRIC, SYLVANIA )

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | AF Amp. -Phase Inv. | 12AX7 | |
| V2 | Output | 6V6GT | |
| V3 | Output | 6V6GT | |
| V4 | Rectifier | 5Y3GT | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING CAP. | RATING VOLT. | REPLACEMENT DATA V-M PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
|---|---|---|---|---|---|---|---|---|---|
| C1A | ■20 | 450 | 12011 | AFH4-14 | DO130 | FP444 | TMQ-12 | Q-040 | TVL-4763 |
| B | ▲20 | 450 | | | | | | | |
| C | 20 | 450 | | | | | | | |
| D | ▲20 | 450 | | | | | | | |

## FIXED CAPACITORS

**Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA V-M PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| C2 | 33 | | 12047 | SI33 | D6-330 | LT6Q33 | ED-33 | UC-5433 | 5GA-Q33 | |
| C3 | .047 | 400 | 12009 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C4 | .0022 | 400 | 12049 | BPD-0022 | D6-222 | CUB4D22 | ED-0022 | GEM-6222 | 6TM-D22 | |
| C5 | .0022 | 400 | 12049 | BPD-0022 | D6-222 | CUB4D22 | ED-0022 | GEM-6222 | 6TM-D22 | |
| C6 | .047 | 400 | 12009 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C7 | .047 | 400 | 12009 | BPD-05 | DF-503 | CUB4S47 | | GEM-4147 | 4TM-S47 | |
| C8 | 680 | | 12039 | BPD-00068 | DD-681 | L10T68 | ED-680 | UC-5368 | 5GA-T68 | |

## CONTROLS

| ITEM No. | RATING RESIST-ANCE | RATING WATTS | REPLACEMENT DATA V-M PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| R1A | 5Meg | ½ | 12301 | B-88 | A47-1Meg-Z | Q13-141 | U65 | Volume |
| B | Shaft | | | Not Req. | KSS-3 | Not Req. | Not Req. | |
| R2A | 1Meg | ½ | 11995 | BB-108 | AD47-1Meg-S | Q11-137 | UF16L | Tone |
| B | 1Meg | ½ | | Not Req. | Not Req. | M11-137 | UR16L | Tone |
| C | Shaft | | | AK-16 | KSS-3 | Not Req. | DS-36 | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

| ITEM No. | RATING OHMS | RATING WATT | REPLACEMENT DATA V-M PART No. | IRC PART No. | NOTES |
|---|---|---|---|---|---|
| R3 | 220K | | 11293 | BTS-220K | |
| R4 | 3900Ω | | 10873-10 | BTS-3900 | |
| R5 | 220K | | 11293 | BTS-220K | |
| R6 | 22K | | 11053 | BTS-22K | |
| R7 | 22K | | 11053 | BTS-22K | |
| R8 | 1Meg | | 11453 | BTS-1Meg | |
| R9 | 1000Ω | | 10733 | BTS-1000 | |
| R10 | 220K | | 11293 | BTS-220K | |
| R11 | 220K | | 11293 | BTS-220K | |
| R12 | 470K | | 11373 | BTS-470K | |
| R13 | 470K | | 11373 | BTS-470K | |
| R14 | 200Ω | 5 | 11979 | PW7-200 | |
| R15 | 10K | | 10973 | BTS-10K | |
| R16 | 100K | | 11213 | BTS-100K | |
| R17 | 470Ω | 2 | 10655 | BTB-470 | |
| R18 | 47K | | 11133 | BTS-47K | |

SET 373 FOLDER 15

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | RATING SEC. 3 | REPLACEMENT DATA V-M PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. |
|---|---|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC @ .55A | 545VCT @ .077A | 5VAC @ 2A | 6.3VCT @ 1.3A | 12518-5 ① | P9204 | | *PC8403 | 22R02 ② | R-8A |

① Alternate Part No. 12518.
② Use Universal Mtg. Brackets.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE PRI. | IMPEDANCE SEC. | REPLACEMENT DATA V-M PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T2 | 6600Ω CT | 3-4Ω | 12519-4 ① | Z1011 | A-2901 ② | A-3870 | 22S47 ② | S-55X | ① Alternate Part No. 12519<br>② Drill New Mtg. Hole. |

## SPEAKER

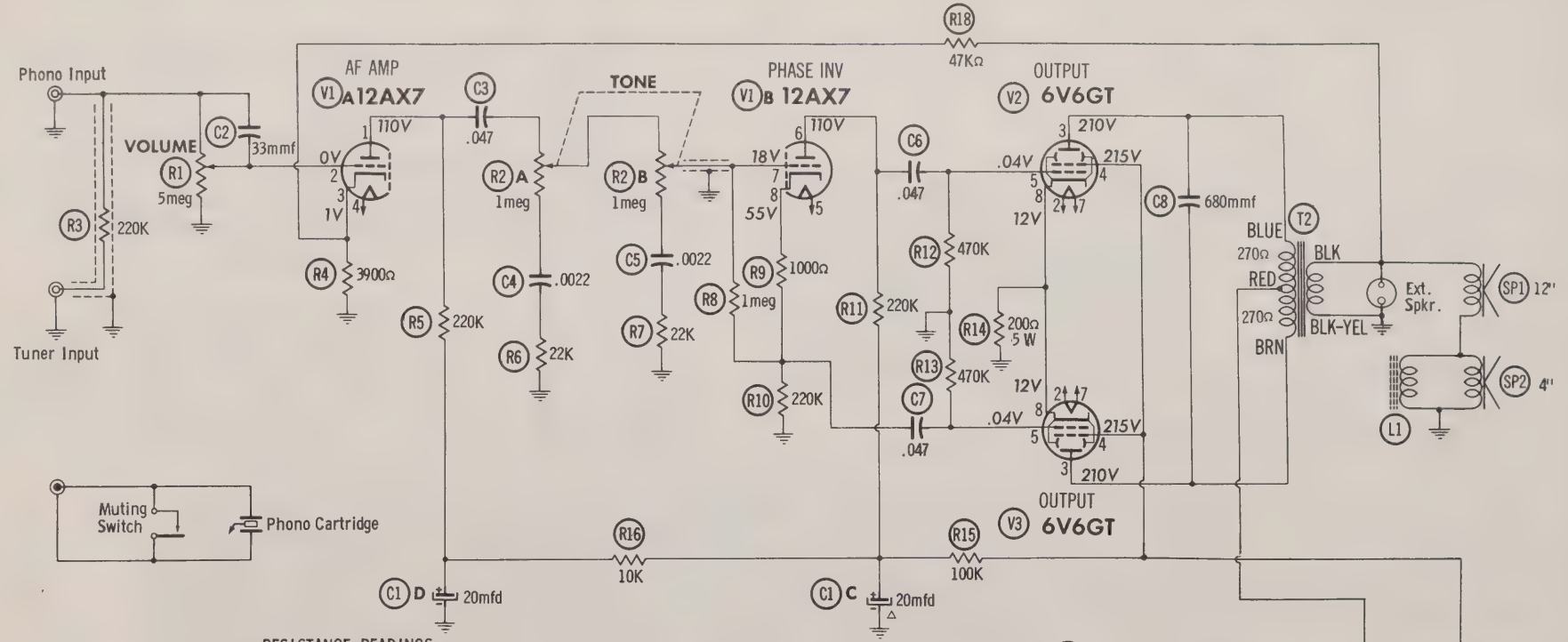
| ITEM No. | TYPE SIZE | TYPE FIELD | TYPE V. C. IMP. | REPLACEMENT DATA V-M PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| SP1 | 12" | PM | 3-4Ω | 8317-5 ①② | 12A4A ① | ① Connect in series & phase. |
| SP2 | 4" | PM | 3-4Ω | 8230-12①③ | 3A15Z3.4 ① | ② Alternate Part #8317.<br>③ Alternate Part #8230 |

## COILS

| ITEM No. | USE | REPLACEMENT DATA V-M PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | NOTES |
|---|---|---|---|---|---|---|
| L1 | Cross-Over Choke | 12514 | | | | 220 Microhenries |

## MISCELLANEOUS

| ITEM No. | PART NAME | V-M PART No. | NOTES |
|---|---|---|---|
| M1 | Pilot Light | 7791 | #1847 |
| M2 | Phono Motor | 6945 | Complete Assy. Part #6950 |




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V1 | 12AX7 | † 330K | 18Ω | 3900Ω | .2Ω | .2Ω | † 320K | 1.1Meg | 220K | .2Ω |
| V2 | 6V6GT | NC | .2Ω | † 270Ω | † 470Ω | 470K | TP | .2Ω | 200Ω | |
| V3 | 6V6GT | NC | .2Ω | † 270Ω | † 470Ω | 470K | TP | .2Ω | 200Ω | |
| V4 | 5Y3GT | NC | 20K (MIN) | NC | 72Ω | NC | 78Ω | NC | 20K (MIN) | |

† MEASURED FROM PIN 8 OF V4.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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ZENITH MODELS A400G,W,Y
A404L (Ch. 4A40, 4A42)

ZENITH MODELS A400G,W,Y
A404L (Ch. 4A40, 4A42)

| | |
|---|---|
| TRADE NAME | Zenith Models A400G, A400W, A400Y (Ch. 4A40), A404L (Ch. 4A42) |
| MANUFACTURER | Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill. |
| TYPE SET | Three Power Portable AM Receiver |
| TUBES (Four) | Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output |
| POWER SUPPLY | 110-120 Volts AC-DC (or) 7.5 Volts "A" Supply & 90 Volts "B" Supply |
| RATING | .15 Amp. @ 117 Volts AC (or) 52MA @ 7.5 Volts DC & 17MA @ 90 Volts DC |
| TUNING RANGE—BROADCAST | 535KC - 1620KC |

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1 | .5MFD | High side to pin 6 (grid) of 1R5 (V1). Low side to B-. | 455KC (400~ Mod) | 600KC | Across voice coil | A1, A2, A3 | Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation. |
| 2 | | Loop | 1600KC | 1600KC | " | A4 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3 | | " | 1400KC | Tune to 1400KC signal | " | A5 | " |

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# PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL A400G (Ch. 4A40)

## TUBES ( GENERAL ELECTRIC, SYLVANIA)

| ITEM No. | USE | TYPE | NOTES |
|---|---|---|---|
| V1 | Converter | 1R5 | |
| V2 | IF Amplifier | 1U4 | |
| V3 | Det. -AVC-AF Amp. | 1U5 | |
| V4 | Output | 3V4 | |

## ELECTROLYTIC CAPACITORS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT. | ZENITH PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | MALLORY PART No. | PYRAMID PART No. | SANGAMO PART No. | SPRAGUE PART No. |
| C1A | ■80 | 150 | 22-2886 | AFH3-64-65 | | FP302.5 | | D-085 | TVL-3414.7 |
| B | ▲60 | 150 | | | | | | MTH-1225 | |
| C | 200 | 10 | | | | | | | |

## FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | ZENITH PART No. | AEROVOX PART No. | CENTRALAB PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | MALLORY PART No. | SPRAGUE PART No. | |
| C2 | 100 | | 22-5 | BPD-0001 | DD-101 | L10T1 | ED-100 | UC-531 | 5GA-T1 | |
| C3 | .022 | 200 | 22-2804 | BPD-02 | DD-203 | CUB4S22 | ED-02 | GEM-4122 | 4TM-S22 | |
| C4 | 4700 | | 22-4 | BPD-0047 | DD-472 | BYA10D47 | ED-0047 | UC-5247 | 5GA-D47 | |
| C5 | 10000 | | 22-3 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C6 | 10000 | | 22-3 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C7 | 4700 | | 22-4 | BPD-0047 | DD-472 | BYA10D47 | ED-0047 | UC-5247 | 5GA-D47 | |
| C8 | 100 | | 22-5 | BPD-0001 | DD-101 | L10T1 | ED-100 | UC-531 | 5GA-T1 | |
| C9 | 4700 | | 22-4 | BPD-0047 | DD-472 | BYA10D47 | ED-0047 | UC-5247 | 5GA-T47 | |
| C10 | 4700 | | 22-14 | BPD-0047 | DD-472 | BYA10D47 | ED-0047 | UC-5247 | 5GA-T47 | |
| C11 | .047 | 200 | 22-2792 | BPD-05 | DF-503 | CUB2S47 | | GEM-4147 | 2TM-S47 | |
| C12 | 10000 | | 22-3 | BPD-01 | DD-103 | BYA6S1 | ED-01 | DC511 | 5HK-S1 | |
| C13 | .1 | 200 | 22-2780 | P288N-1 | DF-104 | CUB2P1 | | GEM-201 | 2TM-P1 | |

## CONTROLS

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | ZENITH PART No. | CENTRALAB PART No. | CLAROSTAT PART No. | IRC PART No. | MALLORY PART No. | |
| R1A | 1Meg | ½ | 63-3615 | B-69 | A47-1Meg-S | | U54 | Volume |
| B | Shaft | | | Not Req. | FS-3 | | Not Req. | |
| C | Switch | | | KB-1 | SWE-20 | | US-27 | |

## RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

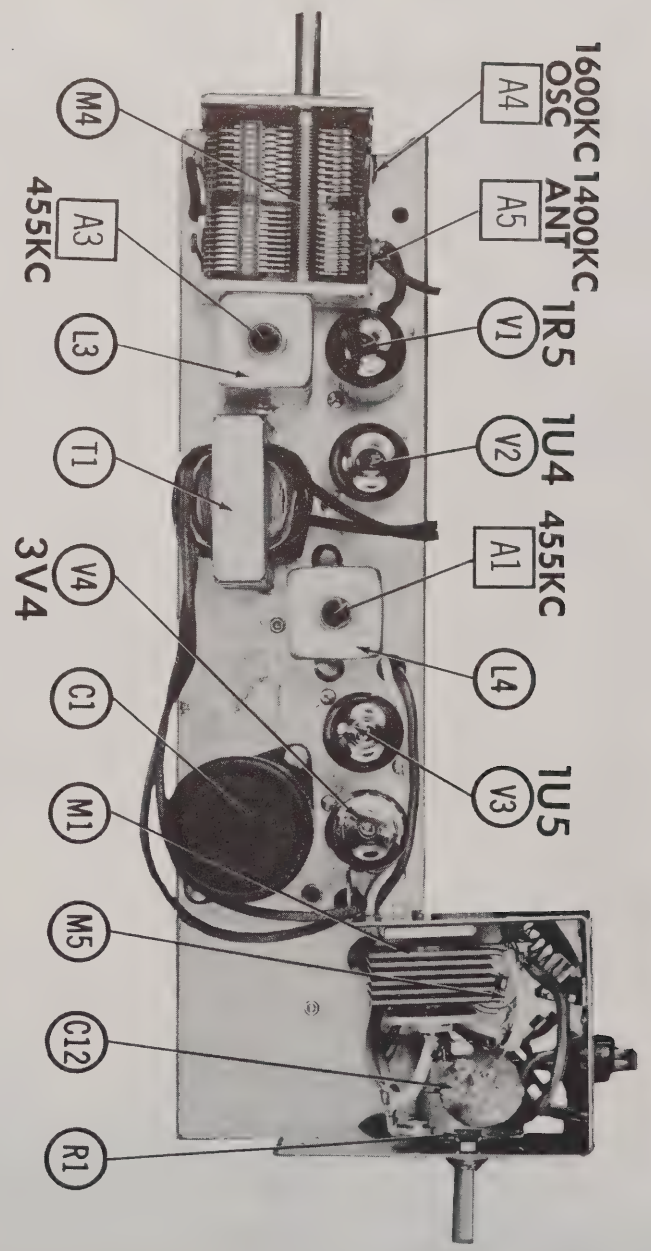
| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | ZENITH PART No. | IRC PART No. | |
| R2 | 100K | | 63-1870 | BTS-100K | |
| R3 | 4.7Meg | | 63-1940 | BTS-4.7Meg | |
| R4 | 3900Ω | | 63-1810 | BTS-3900 | |
| R5 | 1Meg | | 63-1912 | BTS-1Meg | |
| R6 | 220K | | 63-1883 | BTS-220K | |
| R7 | 180Ω | | 63-1754 | BTS-180 | |
| R8 | 4.7Meg | | 63-1940 | BTS-4.7Meg | |

| ITEM No. | RATING | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|
| | OHMS | WATT | ZENITH PART No. | IRC PART No. | |
| R9 | 1Meg | | 63-1912 | BTS-1Meg | |
| R10 | 2.2Meg | | 63-1926 | BTS-2.2Meg | |
| R11 | 680Ω | | 63-1778 | BTS-680 | |
| R12 | 1750Ω | 5 | 63-3259 | | |
| R13 | 180Ω | 4 | 63-2821 | | |
| R14 | 680Ω | | 63-1778 | BTS-680 | |
| R15 | 4.7Meg | | 63-1940 | BTS-4.7Meg | |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | IMPEDANCE | | REPLACEMENT DATA | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | ZENITH PART No. | Halldorson PART No. | Merit PART No. | Stancor PART No. | Thordarson PART No. | Triad PART No. | |
| T1 | 9400Ω | 3-4Ω | 95-1485 | | A-2927 ① | A-3329 ① | 24S49 ① | S-11X ① | ① Use original mounting frame. |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | TYPE | | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | SIZE | FIELD | V. C. IMP. | ZENITH PART No. | QUAM PART No. | |
| SP1 | 4" | PM | 3-4Ω | 49-819 | 4A07 | |

## COILS (RF-IF)

| ITEM No. | USE | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|
| | | ZENITH PART No. | MEISSNER PART No. | MERIT PART No. | MILLER PART No. | |
| L1 | Loop Stick | S-24640 | | | | Model A404L |
| | Loop Stick | S-41072 | | | | Model A400 Series |
| L2 | Osc. Coil | S-24403 | | | | |
| L3 | Input IF | 95-1422 | 16-6780 | BC-356 | 13-PC1 | |
| L4 | Output IF | 95-1484 | | | | |

## SELENIUM RECTIFIER

| ITEM No. | RATING | REPLACEMENT DATA | | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | CURRENT (Measured) | ZENITH PART No. | FEDERAL PART No. | INTERNATIONAL PART No. | MALLORY PART No. | SARKES TARZIAN PART No. | |
| M1 | .066A | 212-5<br>212-20 | 1003A | RS075 | | 75 | Chassis 4A42<br>Chassis 4A40 |

## BATTERIES

| ITEM No. | VOLTAGE | ZENITH PART No. | REPLACEMENT DATA | | | | | | | | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BURGESS | | EVEREADY | | MALLORY | | RAY-O-VAC | | |
| | | | "A" | "B" | "A" | "B" | "A" | "B" | "A" | "B" | |
| M2 | 7½V | Z707 | D5 | | 707 | | M-26 | | 26 | | |
| M3 | 90V | Z495 | | P60 | | 479 | | M-214 | | 214 | |

## MISCELLANEOUS

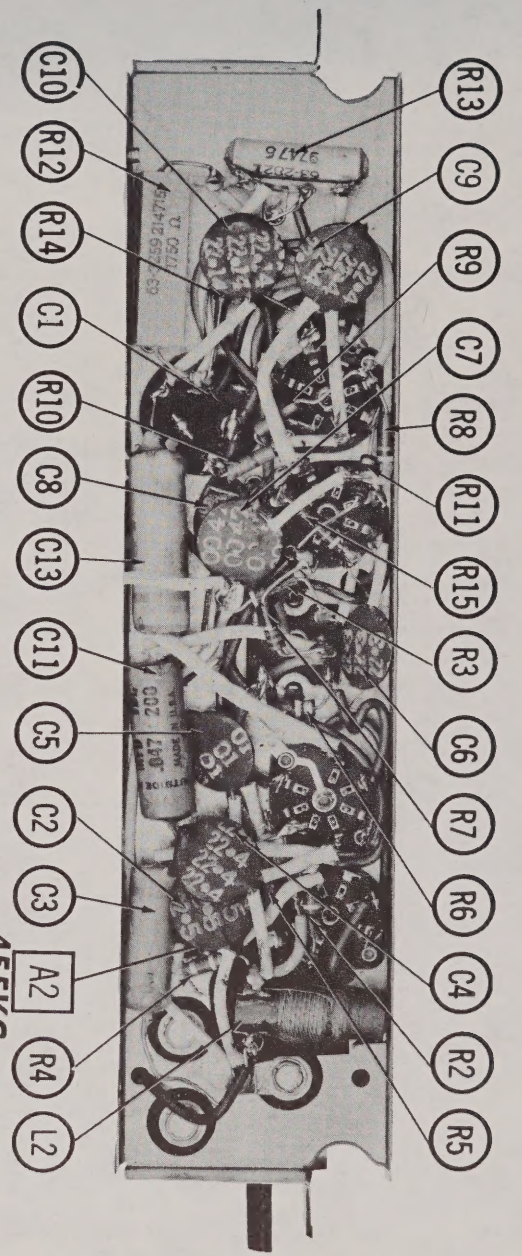
| ITEM No. | PART NAME | ZENITH PART No. | NOTES |
|---|---|---|---|
| M4 | Tuning Cap | 22-2736 | 2 Gang (Ant. 20-325MMF, Osc. 20-135MMF) |
| M5 | Switch | 85-575 | Power Change-Over (Rotary Wafer Type) |

## CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

| NAME | PART NO. | DESCRIPTION |
|---|---|---|
| Knob | 46-1565 | On-Off-Volume, Model A404L |
| Knob | 46-1564 | Tuning, Model A404L |
| Knob | 46-1837 | On-Off-Volume, Model A400Y |
| Knob | 46-1836 | Tuning, Model A400Y |
| Knob | 46-1840 | On-Off-Volume, Model A400G |
| Knob | 46-1842 | Tuning, Model A400G |
| Knob | 46-1803 | On-Off-Volume, Model A400W |
| Knob | 46-1799 | Tuning, Model A400W |
| Cabinet | 14-2206 | Leather, Model A404L |
| Cabinet-Front | 14-2167 | Plastic, Model A400Y |
| Cabinet-Rear | 14-2172 | Plastic, Model A400Y |
| Cabinet-Front | 14-2267 | Plastic, Model A400G |
| Cabinet-Rear | 14-2266 | Plastic, Model A400G |
| Cabinet-Front | 14-2168 | Plastic, Model A400W |
| Cabinet-Rear | 14-2173 | Plastic, Model A400W |
| Handle | 36-52 | Model A400Y |
| Handle | 36-181 | Model A400G |
| Handle | 36-166 | Model A400W |

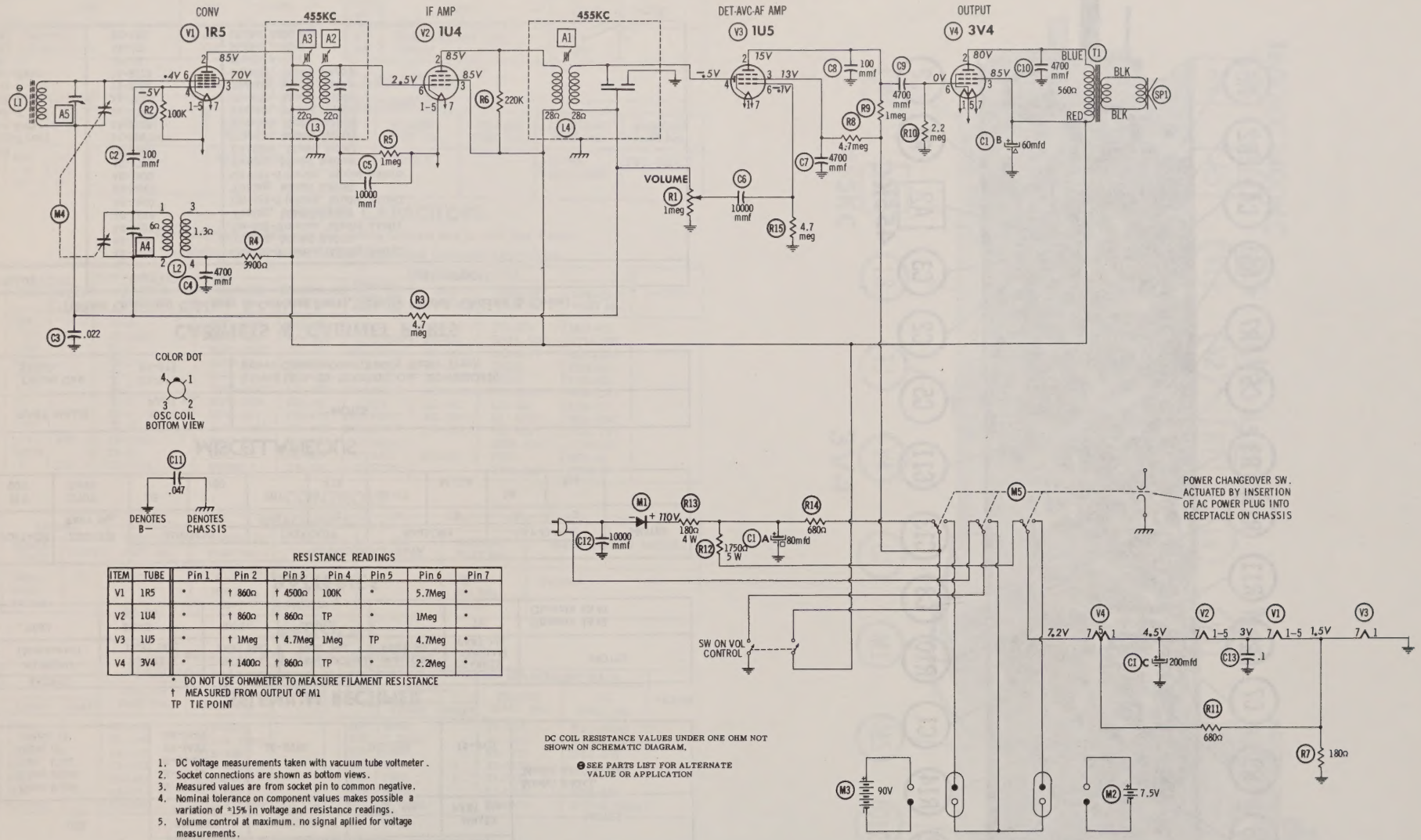
# CHASSIS—BOTTOM VIEW








ZENITH
MODEL A400G (Ch. 4A40)




RESISTANCE READINGS

| ITEM | TUBE | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 |
|---|---|---|---|---|---|---|---|---|
| V1 | 1R5 | * | † 860Ω | † 4500Ω | 100K | * | 5.7Meg | * |
| V2 | 1U4 | * | † 860Ω | † 860Ω | TP | * | 1Meg | * |
| V3 | 1U5 | * | † 1Meg | † 4.7Meg | 1Meg | TP | 4.7Meg | * |
| V4 | 3V4 | * | † 1400Ω | † 860Ω | TP | * | 2.2Meg | * |

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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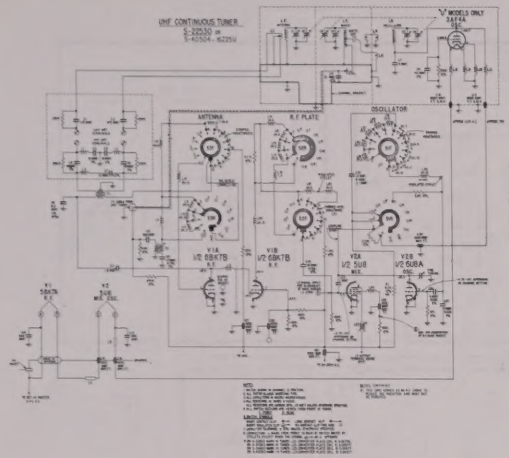
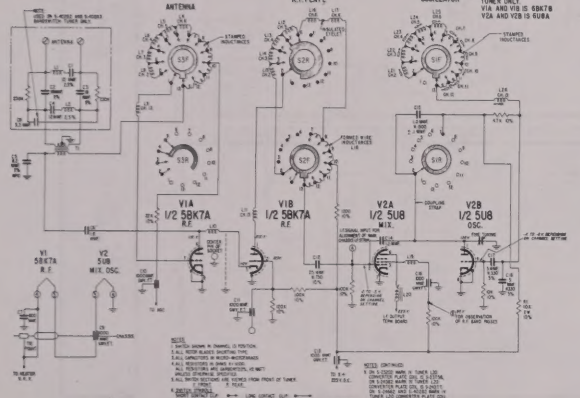
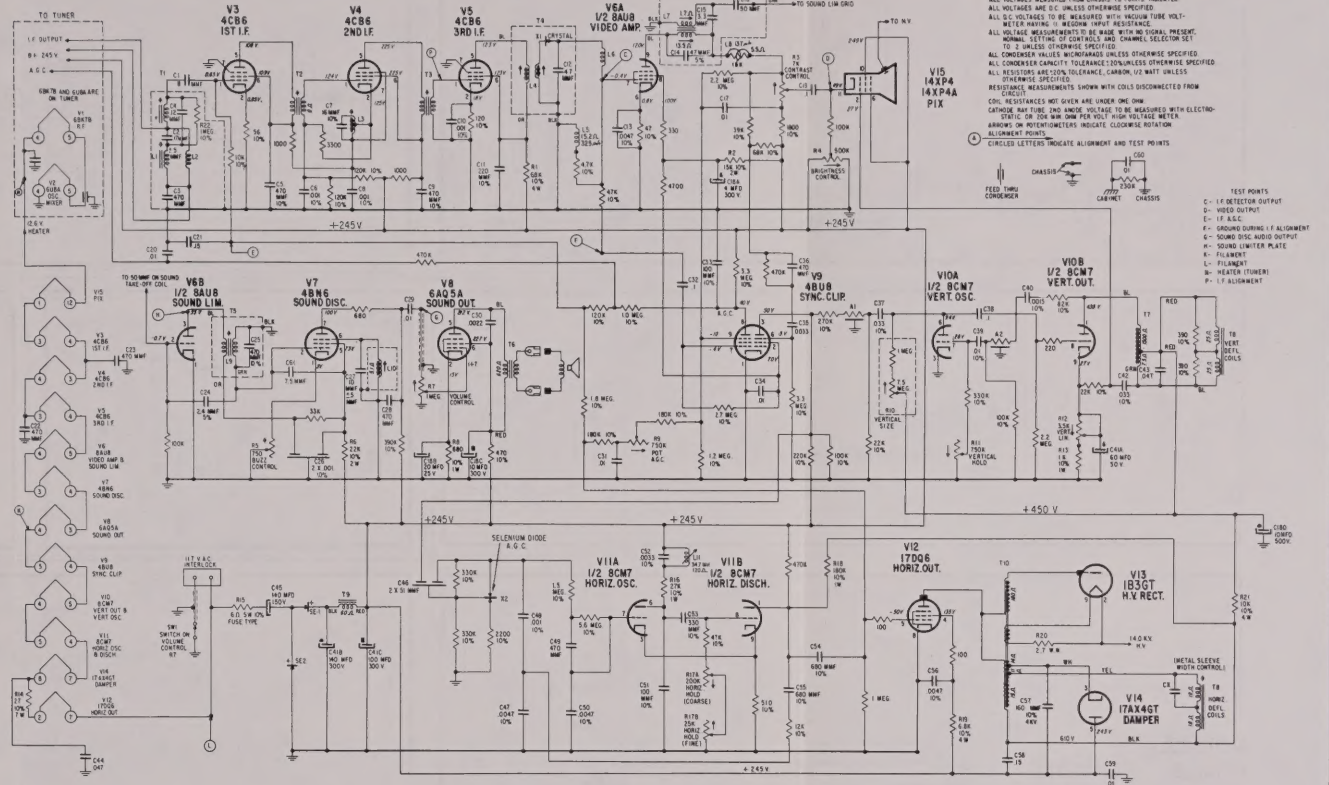




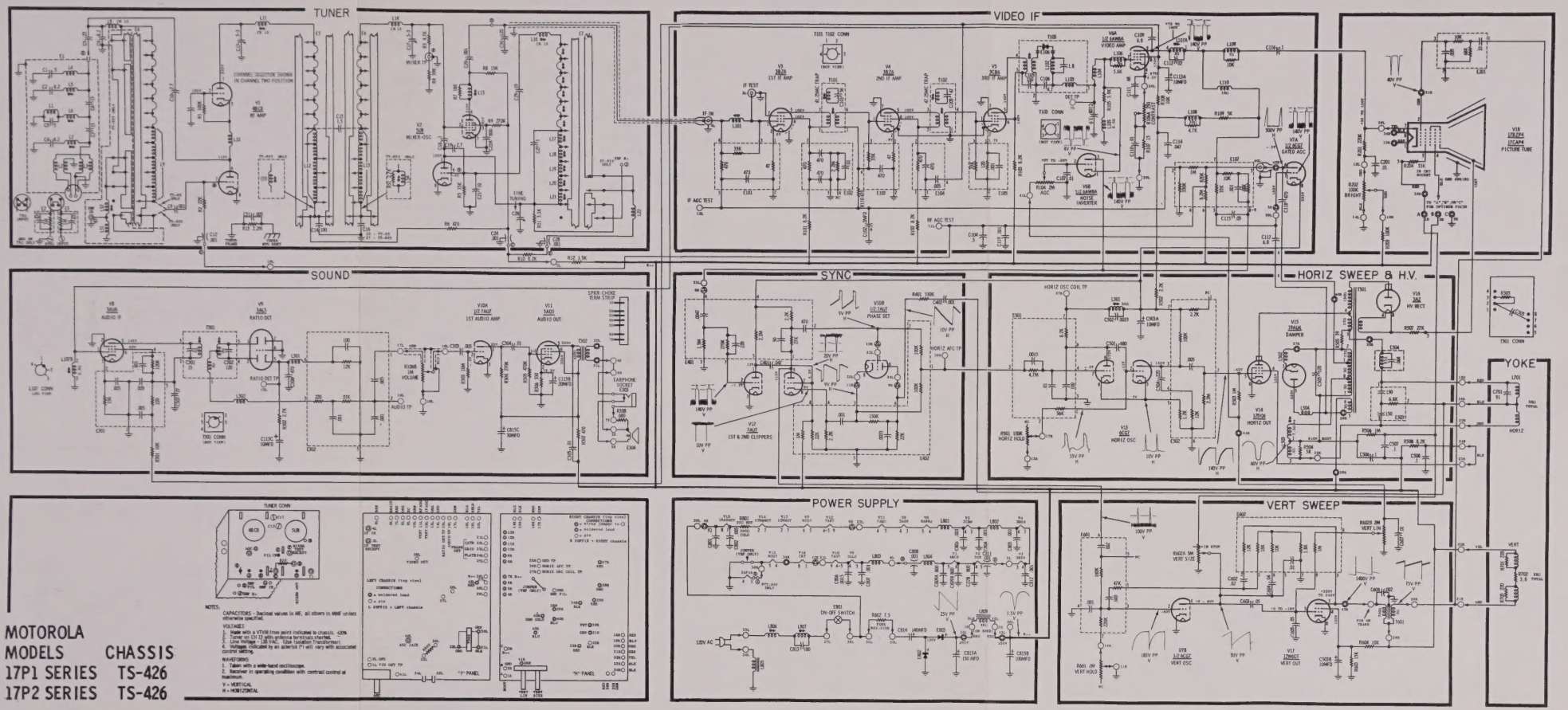
| ZENITH MODELS | CHASSIS |
|---|---|
| A1510L | 15A25 |
| A1511G | " |
| A1512J | " |
| A1515W | " |



SCHEMATIC COURTESY OF ZENITH RADIO CORPORTATION

ZENITH

MOTOROLA




MOTOROLA
MODELS CHASSIS
17P1 SERIES TS-426
17P2 SERIES TS-426

SCHEMATIC COURTESY OF MOTOROLA INC.

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